NOVEMBER, 1956

TRAFFIC ENGINEERING

- 26th Annual Meeting
- The Economic Costs of Motor Vehicle Accidents
- New Haven's Pigeon Hole Garage

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Frankly Speaking . . .

IN NO PREVIOUS YEAR have the Institute and its members faced a time of decision such as the year ahead. Never before has the need been so great that the profession of traffic enginering achieve and maintain its rightfully mature stature in the field of highway and transportation administration.

If the traffic engineer is to help the American motoring public obtain the highway system drivers and our modern economy demand, we must recognize and foster changes in our highway outlook.

New concepts in the following areas based on fact, research, and mature judgement are vital:

First, change is needed in our appraisal of driver needs, desires, and abilities.

Second, change is needed in our overall concept of state and national highway needs.

Third, new standards are needed to project a system that will meet future neds.

Four, a more realistic basis for financial support is necessary.

And five, new concepts of management of our highway and transportation system are needed if the job is to be done.

As traffic engineers, we are part of a team under the highway administrator responsible for planning, design, construction, maintenance, and operation of our present and future transportation system and facilities.

We are comparative newcomers to the highway family. We must, therefore, prove our value by making the best all-out contribution we can in those areas coming within our scope of activity—collection, analysis and interpretation of factual data; traffic planning; traffic design; and traffic operational measures.

If we are to be instrumental in obtaining the safe, efficient, economical highway systems for which the motorist is paying, we must establish the voice and values of traffic engineering at an even higher staff level on the administrative team than we have to this time. Each of us, individually, can contribute daily to such a goal.

We can pause to assess our daily activities as they are a part of over-all administration. We can put ourselves in our top administrator's shoes and learn to recognize *all* considerations affecting the problems before us. Without compromising on essential principles, we must understand his problems and temper our judgements against the realistic considerations confronting each administrator.

Above all, we must learn diplomacy while at the same time we become the conscience of the industry . . . and the demanding voice of highway users. We have a responsibility for isolating, identifying, and interpreting the wishes of highway users. We have a dual responsibility of representing these desires on the highway team — whether we have an immediate responsibility for interstate, state, county, or local highway facilities.

Integration of traffic engineering with the other engineering functions represented on the highway team is our challenge if traffic and highway operation are to be realized on the scale which modern technology and the motoring, tax-paying public demand. Becoming "of age" in fact, as well as in years, as a member of the highway team is a must if we, as traffic engineers, are to help give motorists the roads they can drive — conveniently . . . economically . . . and safely!

J. CARL McMONAGLE,
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Institute Holds 26th Annual Meeting in San Francisco

NEW DEVELOPMENTS and techniques designed to develop greater safety and efficiency on the Nation's streets and highways were the keynotes of the 26th Annual Meeting of the Institute of Traffic Engineers, held September 25-27 in San Francisco, California.

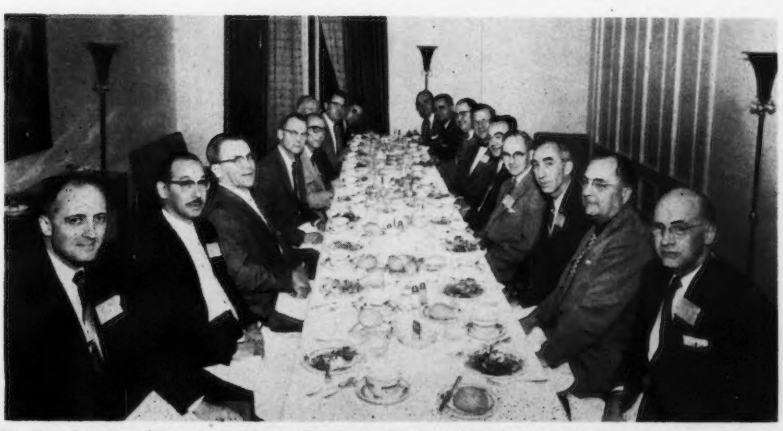
Some 450 delegates to the convention heard discussions of the urban area of the future, the urban transportation system of the future and the challenge which these present to the traffic engineer. Special attention was given to the problems presented by the new national highway program.

Robinson Newcomb, consulting engineer from Washington, D. C., advised traffic engineers to take a firm stand to get government to adopt objectively conceived highway and freeway standards, and used New York City as an example of lack of vision and applying plans recommended 30 years ago.

The future urban transportation system was discussed by William McConochie of Chicago, and the challenge to the traffic engineer was presented by J. O. Mattson, president of the Automotive Safety Foundation. He estimated that 1200 additional engineering specialists were needed now to help city and state agencies cope with mounting traffic problems. He urged that more service training programs be developed and that engineers not be burdened with tasks which can be assigned to non-professionals. He also urged increased traffic engineering training in colleges and universities and action by states and cities to attract more young engineers into the field.

President J. Carl McMonagle presides at the annual business meeting. Also visible, from left to right, are: Matthew C. Sielski, Vice President, Joseph E. Havenner, Vice President, Herbert C. Higgins, Director, George W. Howie, Director, Edward G. Wetzel, Secretary-Treasurer, and Robert A. Burch, Director.

G. Donald Kennedy, president of the Portland Cement Association, spoke of the effect of the new federal highway program on traffic engineering. He emphasized that traffic engineers have in the past been largely devoting their efforts to providing controls and improved operation on existing facilities, but that now traffic engineering could have its rightful place in the planning



The Board meets with past presidents. Shown on the right side of the table above are past presidents Harry Porter, Jr., Donald M. McNeil, Burton W. Marsh, D. Grant Mickle, Charles W. Prisk, F. Bruce Crandall, and Robert A. Mitchell.

and design of an entirely new highway system. Work of the National Committee on Urban Transportation was discussed by Edward M. Hall of San Diego, who told of the efforts of this group to develop a technique for evaluating urban highway systems comparable to the methods developed over the years for rural highways.

The role of the traffic engineer in subdivision and shopping center planning was discussed by George Barton of Evanston, Illinois. Traffic safety as an engineering responsibility was presented by Roy E. Jorgensen of the National Highway Users Conference. He emphasized the need for an objective approach to the traffic accident problem. He stated that any real solution to our current accident situation must depend upon complete and objective reports of accidents and that the current inadequacy of accident reports is still a crippling deterrent to engineering analysis.

Final papers dealt with traffic engineering techniques and research. Automation in traffic control was discussed by Edmund Ricker of the New Jersey Turnpike, and Karl Moskowitz of the California Division of Highways talked about research on the operating characteristics of freeways, illustrated by a motion picture. A final session, under the chairmanship of Burton W. Marsh of the American Automobile Association, produced interesting discussions of various traffic engineering techniques, and featured a number of younger members of the organization.

One technical session was devoted to group meetings of the seven Technical Council Departments. Embarked upon as an experiment this year, these sessions proved extremely interesting.

Total registration was 604, which included nearly 160 wives. This made the San Francisco meeting the largest Annual Meeting ever held. The burden of making arrangements for and running the meeting fell upon the local committee, under the chairmanship of Bob Glenn of the Institute of Transportation and Traffic Engineering. He had a group of able assistants, including Jerry O'Shea, Ross Shoaf, Jay Czizek and Robert Graver. Also helping were Arthur Jenkins, Richard Bartle, William Marconi, Henry Evans, James Kell, Norman Kennedy, and a group of ladies headed by Mrs. Czizek, Mrs. O'Shea and Mrs. Shoaf.

New York and Chicago discuss mutual problems. Left to right: T. T. Wiley, William R. Marston, and Evan E. Olmstead.

In addition to the technical sessions, delegates enjoyed the annual Biscuit Banter Breakfast, a bus tour of San Francisco, and a boat trip around San Francisco Bay.

Wives were entertained by a tour of San Francisco's points of scenic interest, a tour of San Francisco's fabulous shops, the Bay cruise, and luncheons and breakfasts at famous San Francisco restaurants.

The climax of the meeting was the annual banquet. At the banquet, announcement was made of the Past Presidents' Award, won by David Solomon, and the decision of the 1958 Site Selection Committee to hold the 1958 meeting in Miami. Announcement of Detroit as the 1957 site had been made the year before.

The Ladies' Committee at the Cliff House luncheon.

The Economic Costs Of Motor Vehicle Accidents

by Robie Dunman
Transportation Economist
U. S. Bureau of Public Roads

A paper before the Committee on Planning and Traffic Engineering, Southeastern Association of State Highway Officials, Roanoke, Virginia, September 6, 1956.

STUDYING THE ECONOMIC COSTS of motor-vehicle accidents was first proposed by the Highway Research Board about 12 years ago. However, for a number of reasons the first comprehensive study on a statewide basis did not get underway until July 1954, when a study was begun by the Massachusetts Department of Public Works and Registry of Motor Vehicles in cooperation with the Bureau of Public Roads. This discussion is based on experience in the first part of that study.

The Massachusetts study is divided into three closely related but completely separate parts. The first part—the immediate subject of discussion—consists of a determination of the direct cost of motor-vehicle accidents to the State's passenger-car owners, passengers injured in their vehicles, and pedestrians killed or injured by them. The second part of the study — now well under way—is identical to the first except that it is confined to the accident costs of truck owners and the victims of their accidents. The third and final part of the study consists of a determination of the indirect cost of motor-vehicle accidents to all the citizens of the State.

Direct costs are composed of the money value of the following: damage to property; hospitalization; doctors, dentists, and nursing service; ambulance use; medicine; damages awarded in excess of other direct costs; attorneys' services; court fees; and other small miscellaneous items.

Indirect costs are composed of the money value of such things as the loss of future earnings, the overhead cost of accident insurance, high school driver training, safety engineering, traffic courts, traffic police, and all traffic accident prevention activities.

The direct cost of truck accidents and the indirect costs outlined above have not yet been determined. These costs are not reflected in any of the tables or the figures to be presented at this time. However, it is already obvious that indirect costs reach very large proportions. The Nation's motorists pay $41/2 billion in insurance premiums alone to protect themselves from the cost of accidents each year. It is estimated that more than half the civil suits that clog our courts have their origin on our streets and highways. Our urban traffic courts alone handle in excess of 11 million traffic violations each year.

Twelve statistical tables are included in this report. These are preliminary tables. They are representative of 437 others from the unpublished report of the Massachusetts study. Collectively these tables provide accurate and detailed accident costs correlated with the more important accident characteristics—such as severity, location, type of accident, highway system, light, weather, and model of the vehicles involved.

These tables are expanded directly from the basic data; there are no derived tables included. The possibility of deriving additional tables is almost unlimited. For example, a most useful handbook of average costs for every type of accident or involvement could be readily developed by simply dividing figures in the accident and involvement series of tables into the figures of the cost series of tables.

These tables include the total accident experience of Massachusetts car owners and include not only their accidents within the State but also those occurring outside the State. There are other series of the tables that show the accident experience and cost within the State, within rural areas, within urban areas, at intersections, between intersections, etc.

The great magnitude of the traffic-accident problem is clearly reflected by Table B1.41. Here we have one State with a population of approximately 4,900,000 and 1¼ million registered passenger cars experiencing 214,000 passenger-car mishaps in a single year.

If this figure of 214,000 staggers the reader, if it sounds preposterous in comparison with the reported accidents in your own State, remember that for the first time in history there is included in this table all the accidents that are ordinarily unreported. Even in States with the very best accident-reporting records, unreported accidents

Table B1.41.—Total motor-vehicle traffic accidents and incidents by accident class and severity for passenger cars registered in Massachusetts: 1953

Accident class	Severity of accident			
	Fatal	Nonfatal	Property damage	Total
Motor-vehicle accidents				
Traffic 1/	315	33,270	97,951	131,536
Nontraffic 2/	-	638	12,489	13,127
Total	315	33,908	110,440	144,663
Motor-vehicle incidents				
Traffic 3/	-	180	43,259	43,439
Nontraffic 4/	-	150	26,426	26,576
Total	-	330	69,685	70,015
Total all classes	315	34,238	180,125	214,678

1/ Motor-vehicle traffic accidents occur on public roadways and involve motion.
2/ Motor-vehicle nontraffic accidents occur on private property and involve motion.
3/ Motor-vehicle traffic incidents occur on public roadways but do not involve motion.
4/ Motor-vehicle nontraffic incidents occur on private property and do not involve motion.

Table B1.03.—Total motor-vehicle traffic accidents by population group and severity for passenger cars registered in Massachusetts: 1953

Population group	Severity of accident			
	Fatal	Nonfatal	Property damage	Total
Rural areas	90	3,948	12,504	16,542
Urban areas having population of:				
1 - 2,500	-	18	724	742
2,501 - 10,000	13	776	2,896	3,685
10,001 - 25,000	57	4,709	13,862	18,628
25,001 - 50,000	34	4,475	12,202	16,709
50,001 - 100,000	41	6,173	19,457	25,671
100,001 - 250,000	42	6,159	18,281	24,482
250,001 - 500,000	-	-	136	136
500,001 - 1,000,000	38	7,014	17,798	24,850
1,000,001 and over	-	-	91	91
Urban area total	225	29,322	85,447	114,994
Total	315	33,270	97,951	131,536

run as high as 50 to 60 percent of the total. Furthermore, Massachusetts consistently has one of the best accident-prevention programs and one of the very best safety records in the country.

Fatal accidents make the headlines and are constantly used to dramatize traffic safety speeches but notice they constitute less than 2/10 of 1 percent of the total—315 out of 214,000 mishaps. Personal injury accidents account for 16 percent of the total. A high percentage of property-damage-only accidents are not even legally required to be reported, yet 8 out of 10 accidents are of this type—180,000 of a total 214,000.

Table B1.03 shows the number of motor-vehicle traffic accidents involving passenger cars and the population group of the area in which they occurred.

Under the 1950 Census definition of urban-rural, 84 percent of the State's population is in urban areas. However, 87 percent of the traffic accidents occur in those areas. The accident-to-population ratio is 1:49 in rural areas but there is one accident for every 36 persons residing in urban areas.

This means that on a volume basis 9 out of every 10 accidents in the State occur in the fastest growing areas—the cities and towns, including the suburbs. The severity of rural accidents has tended to over-shadow the relative importance of the volume of accidents occurring in urban centers.

The data in this table may eventually have a most profound effect on the methods of estimating the total annual cost of motor-vehicle accidents. As you know, the method currently most in use involves multiplying the number of traffic deaths by a round sum, which represents the cost of 1 death, 35 personal injuries, and 225 property-damage-only accidents—what was thought to be the average ratio of occurrence of these types. In 1954 the sum was $110,000 and the unit costs were $22,600 per death, $1,250 per nonfatal injury, and $190 per property-damage-only accidents.

When the ratio of fatal to nonfatal injury accidents is compared with this method we find not a ratio of 1:35 but a ratio of 1:106 and this varies in the cities of different population size from 1:44 in rural areas, and in each ascending population group; 1:60, 1:83, 1:132, 1:151 until we reach the City of Boston with a death-to-injury ratio of 1:185. The ratio for all urban areas is 1:130.

The ratio of death to property-damage-only accidents increases with the size of the city in just the same way—from 1:139 in rural areas to 1:469 in Boston.

When similar tables are available from other States, they may indicate a striking similarity of death-to-injury ratios in towns and cities of the same size regardless of the State in which they are located.

In the meantime it is abundantly clear that the death-to-injury ratio increases as the population, congestion, and exposure increases.

Table B2.03 shows the annual direct cost of motor-vehicle traffic accidents to be $50 million, or approximately $10 for every man, woman, and child in the State. The average direct cost per passenger-car accident is $380. The average direct cost per involvement — one car in one accident — is $248. The average direct cost of accidents per passenger car registered is $32.

These figures include neither the costs to truck owners involved in accidents nor any indirect costs. Furthermore, they do not include the cost of accidents occurring on private property and the accidents in which there was no motion involved.

Personal injury accidents account for almost $29 million of the total annual direct cost—57 percent. Property-damage-only accidents account for almost $20 million of the total direct cost—almost 40 percent, and fatal accidents account for less than $2 million or approximately 3 percent.

The average direct cost per fatal pasenger-car traffic accident is $5,200, per personal injury it is $860, and for property-damage-only accidents the average is $200.

This table emphasizes the relative importance of the three classes of accidents from an economic point of view. Since the table shows that 87 percent of total direct costs are in connection with accidents occurring in urban areas, it offers additional evidence of the relative importance of the problem in our fastest growing areas — the cities and their suburbs.

Table B2.03.—Total direct costs of motor-vehicle traffic accidents by population group and severity for passenger cars registered in Massachusetts: 1953

Population group	Severity of accident			
	Fatal	Nonfatal	Property damage	Total
	Dollars	Dollars	Dollars	Dollars
Rural areas	404,510	3,475,930	2,545,450	6,425,890
Urban areas having population of:				
1 - 2,500	-	-	23,530	23,530
2,501 - 10,000	62,980	758,390	1,060,660	1,882,030
10,001 - 25,000	305,850	6,276,810	2,325,850	8,899,510
25,001 - 50,000	196,060	3,816,130	2,763,870	6,776,060
50,001 - 100,000	233,830	4,434,680	4,734,960	9,403,470
100,001 - 250,000	237,870	4,803,180	3,245,330	8,286,380
250,001 - 500,000	-	-	179,190	179,190
500,001 - 1,000,000	200,650	5,131,330	2,999,170	8,331,150
1,000,001 and over	-	-	16,290	16,290
Urban area total	1,237,240	25,211,520	17,348,850	43,797,610
Total	1,641,750	28,687,450	19,894,300	50,223,500

Table B.208.—Total direct costs of motor-vehicle traffic accidents by type of accident and severity for passenger cars registered in Massahusetts: 1953

Type of accident	Severity of accident			
	Fatal	Nonfatal	Property damage	Total
	Dollars	Dollars	Dollars	Dollars
Collision with:				
One or more motor vehicles				
Headon	175,460	5,982,240	2,809,710	8,967,410
Rearend	36,540	6,586,780	4,096,030	10,719,350
Angle	217,320	9,294,850	7,663,540	17,175,710
Sideswipe - same direction	1,690	771,500	1,163,830	1,937,020
Sideswipe - opposite direction	14,350	341,700	343,900	699,950
Turning movement	-	222,900	879,660	1,102,560
Parking maneuver	-	21,900	571,960	593,860
Backing in traffic lane	5,890	52,800	72,400	131,090
Other	-	278,700	99,550	378,250
Unknown	42,000	86,100	19,910	110,210
Total	455,450	26,639,470	17,720,490	41,815,410
Pedestrian	824,200	2,527,720	16,290	3,368,210
Railroad train	17,000	117,060	-	134,060
Streetcar or trackless trolley	-	64,200	-	64,200
Bicycle or scooter	42,100	60,900	7,240	110,240
Animal or animal drawn vehicle	5,680	-	146,610	152,290
Fixed object	224,270	1,461,700	1,333,970	3,019,940
Other object	9,500	42,000	155,660	207,160
Noncollision	58,550	762,400	514,040	1,334,990
Unknown type	5,000	12,000	-	17,000
Total	1,641,750	28,687,450	19,894,300	50,223,500

Table B2.08 shows direct costs by type of accident. As might be expected, 83 percent or $41,800,000 of the total direct cost of passenger-car accidents are the result of the collision of vehicles. Angle collision costs of $17 million is the biggest single item. The total cost of rear end collisions is more than that of head-on collisions and the total cost of accidents involving pedestrians is more than twice that of noncollision accidents.

By dividing the number of accidents into the total direct costs we derive averages as follows: head-on collisions, $707; rear end collisions, $480; angle collisions, $320; vehicle - pedestrian collisions, $576; and noncollision accidents $598.

Table B2.11 shows direct costs by highway systems. The very real signifi-

Table B2.11—Total direct costs of motor-vehicle traffic accidents by highway system and severity for passenger cars registered in Massachusetts: 1953

Highway system	Severity of accident			
	Fatal	Nonfatal	Property damage	Total
	Dollars	Dollars	Dollars	Dollars
Federal aid primary system				
State primary routes	766,480	11,756,140	6,335,590	18,858,210
State secondary routes	-	-	-	-
Local systems	-	-	32,580	32,580
Total	766,480	11,756,140	6,368,170	18,890,790
Federal aid secondary system				
State primary routes	240,960	3,146,930	4,244,450	7,632,340
State secondary routes	-	-	-	-
Local systems	-	2,700	-	2,700
Total	240,960	3,149,630	4,244,450	7,635,040
Non federal aid system				
State primary routes	-	458,330	70,590	528,920
State secondary routes	-	-	9,050	9,050
Local systems	629,310	13,151,150	8,646,370	22,426,830
Total	629,310	13,609,480	8,726,010	22,964,800
Total federal aid system	1,007,440	14,905,770	10,612,620	26,525,830
Total state primary routes	1,007,440	15,361,400	10,650,630	27,019,470
Total state secondary routes	-	-	9,050	9,050
Total local systems	629,310	13,153,850	8,678,950	22,462,110
Systems unknown	5,000	172,200	555,670	732,870
Total all systems	1,641,750	28,687,450	19,894,300	50,223,500

cance of this table cannot be brought out without the costs being correlated with traffic volumes, but these data are not yet ready for presentation.

By dividing the known mileage into these costs one can develop the average direct costs of accidents per mile of road on the different systems. The average annual direct cost of passenger-car accidents per mile of road on the Federal-Aid System is $9,200, on the Federal-Aid Secondary System it is $3,450, and on non-Federal-Aid roads it is $1,100.

The average annual direct cost of passenger-car accidents per mile of road on the State primary system is $12,600, and in Massachusetts the average on local roads is $1,000 per mile.

The most striking comparison is between the direct cost of accidents per mile on rural roads and on urban streets. The average annual direct cost of accidents per mile of rural roads is $400, on urban streets it is $4,900. In other words, the average annual direct cost of passenger-car accidents per mile of road in urban areas is 12 times as great as it is in rural areas.

The next table, B2.19, distributes annual direct costs by severity of accident, light, and weather conditions.

Table B2.20—Total direct costs of motor-vehicle traffic accidents by year model and severity for passenger cars registered in Massachusetts: 1953

Vehicle year model	Severity of accident			
	Fatal	Nonfatal	Property damage	Total
	Dollars	Dollars	Dollars	Dollars
1952-1954	339,430	5,553,890	4,362,100	10,255,420
1950-1951	502,870	8,666,270	7,221,900	16,391,040
1948-1949	268,100	4,666,710	3,614,870	8,549,380
1946-1947	194,720	3,321,570	2,351,190	5,867,480
1942-1941	119,280	4,044,920	1,223,560	5,387,760
1940-1939	133,750	1,427,610	478,430	2,039,790
1938-1937	39,100	584,680	217,200	840,980
1936-1935	35,900	287,700	278,740	602,340
1934 or older	-	37,200	28,960	66,160
Model year unknown	8,600	96,900	117,650	223,150
Total	1,641,750	28,687,450	19,894,300	50,223,500

Accidents occurring in clear weather account for 74 percent of the total direct cost. Those occurring in rain, sleet, and snow account for 16 percent, and those occurring in the presence of smoke, fog, dust, and cloudy weather account for 10 percent.

Fifty-five percent of total direct costs result from accidents occurring during daylight.

The total cost of accidents at dusk is 9 times as much as the total cost of those occurring at dawn.

The average direct cost of a daylight accident is $348. The average direct cost of a night time accident is $529.

Table B2.20 distributes the total direct cost of passenger-car accidents by year model of the vehicle.

The comparatively new cars—1950 to 1954 models—constituted 47 percent of the registration, but their owners experienced 53 percent of the total direct cost of accidents.

While 1946 to 1949 models constituted 31 percent of the registrations, their owners experienced only 29 percent of the direct costs.

Prewar cars, 1942 and older models constitute 22 percent of the registration yet their owners experienced only 18 percent of the total cost.

The average direct cost per involvement of the newer cars is $257. The average direct cost per involvement of the medium age group is $213, and the average direct cost of the oldest group is $184.

Table B2.19.—Total direct costs of motor-vehicle traffic accidents by light conditions and weather and severity for passenger cars registered in Massachusetts: 1953

Light and weather	Severity of accident			
	Fatal	Nonfatal	Property damage	Total
	Dollars	Dollars	Dollars	Dollars
Daylight				
Clear	408,140	13,045,810	9,155,570	22,609,520
Dust smoke cloudy foggy	64,280	574,800	801,830	1,440,910
Raining snowing sleeting	40,740	1,734,910	1,314,060	3,089,710
Other or unknown conditions	9,200	172,200	448,880	630,280
Total	522,360	15,527,720	11,720,340	27,770,420
Dawn				
Clear	4,350	186,000	83,260	273,610
Dust smoke cloudy foggy	550	85,800	52,490	138,840
Raining snowing sleeting	-	57,000	215,390	272,390
Other or unknown conditions	-	-	-	-
Total	4,900	328,800	351,140	684,840
Dusk				
Clear	66,390	2,168,210	895,950	3,130,550
Dust smoke cloudy foggy	30,860	297,900	142,990	471,750
Raining snowing sleeting	35,120	501,650	485,080	1,021,850
Other or unknown conditions	-	-	16,290	16,290
Total	132,370	2,967,760	1,540,310	4,640,440
Darkness with street lights				
Clear	401,780	3,795,450	2,651,650	6,848,880
Dust smoke cloudy foggy	16,000	241,800	45,250	303,050
Raining snowing sleeting	170,730	1,606,920	675,130	2,452,780
Other or unknown conditions	-	78,300	655,220	733,520
Total	588,510	5,722,470	4,027,250	10,338,230
Darkness without street lights				
Clear	236,860	3,289,580	856,130	4,382,570
Dust smoke cloudy foggy	66,740	39,900	76,020	182,660
Raining snowing sleeting	70,920	612,650	644,360	1,327,930
Other or unknown conditions	8,090	15,300	-	23,390
Total	382,610	3,957,430	1,576,510	5,916,550
Light				
Conditions unknown	11,000	183,270	678,750	873,020
Total	1,641,750	28,687,450	19,894,300	50,223,500

Table B3.03.—Total vehicle involvements in motor-vehicle traffic accidents by population group and severity for passenger cars registered in Massachusetts: 1953

Population group	Severity of accident							
	Fatal		Nonfatal		Property damage		Total	
	No costs incurred	Costs incurred	No costs incurred	Costs incurred	No costs incurred	Costs incurred	No costs incurred	Costs incurred
Rural areas	-	101	300	6,128	1,629	17,406	1,929	23,635
Urban areas having population of:								
1 - 2,500	-	-	-	-	-	724	-	724
2,501 - 10,000	-	14	60	1,142	1,267	3,620	1,327	4,776
10,001 - 25,000	-	62	240	7,295	2,715	21,358	2,955	28,715
25,001 - 50,000	-	37	390	7,355	2,534	19,548	2,924	26,940
50,001 - 100,000	-	45	570	9,311	2,896	31,856	3,466	41,212
100,001 - 250,000	1	44	1,052	8,708	3,439	26,426	4,492	35,178
250,001 - 500,000	-	-	-	-	-	362	-	362
500,001 - 1,000,000	-	40	690	11,019	2,896	28,598	3,586	39,657
1,000,001 and over	-	-	-	-	-	181	-	181
Urban area total	1	242	3,002	44,830	15,747	132,673	18,750	177,745
Total	1	343	3,302	50,958	17,376	150,079	20,679	201,380

The average direct cost per vehicle registered is as follows: newer cars, $39; middle age cars, $31; and prewar cars, $20.

Table B3.03 concerns involvements, which may be defined as one vehicle in one accident. It may also be defined as one driver in one accident. Out of a total of 222,000 involvements, 21,000, or approximately 10 percent, resulted in little or no direct costs.

Ninety-four percent of the passenger-car drivers involved in personal injury accidents experienced direct costs but only eighty-eight percent of the drivers involved in property-damage-only accidents experienced direct costs.

There are 1.5 passenger cars involved per rural accident. There are 1.7 passenger cars involved per urban accident.

The ratio of no cost involvements to cost involvements is 1:14 in rural areas. In urban areas it is 1:9.

Table B4.34 concerns persons incurring costs as a result of injuries sustained in 131,000 accidents involving 222,000 vehicles.

Of the 45,000 persons incurring such costs, 87 percent were occupants of the vehicles involved and 10 percent were pedestrians.

Of the 39,500 vehicle occupants, 56½ percent were driving, 33½ percent were occupying the right front seat, and 10 percent were in the back seat.

Thirty-eight percent of those incurring costs in fatal accidents were pedestrians, but only 10 percent of those

Activity of injured	Severity of injury		
	Fatal	Nonfatal	Total
Driver of motor vehicle	102	22,234	22,336
Passenger in motor vehicle			
In front seat	129	13,119	13,248
In rear seat	22	3,769	3,791
Elsewhere	-	150	150
Total	151	17,038	17,189
Pedestrian	158	4,545	4,703
Passenger in streetcar or railroad train	-	211	211
Rider or bicycle or scooter	8	481	489
Rider on animal or animal drawn vehicle	1	30	31
Activity unknown	1	361	362
Total	421	44,900	45,321

Table B4.34.—Total persons incurring costs from injuries sustained in motor-vehicle traffic accidents by activity and severity for passenger cars registered in Massachusetts: 1953

Occupation	Severity of accident			
	Fatal	Nonfatal	Property damage	Total
Professional and semi-professional	13	2,763	10,679	13,455
Proprietors managers and officials	18	3,692	9,774	13,484
Store clerks store salesmen office clerks	48	8,772	17,195	26,015
Traveling salesmen agents etc.	15	3,153	8,507	11,675
Craftsmen foremen and skilled labor	44	9,997	40,544	50,605
Operatives and semi skilled labor	52	8,679	21,901	30,632
Laborers and unskilled workers	28	2,672	6,516	9,216
Protective service workers	16	2,072	5,973	8,061
Personal service workers	5	630	1,448	2,083
Students retired persons housewives and children	79	9,547	21,388	31,014
Other occupations	-	-	2,534	2,534
Occupation unknown	6	2,283	20,996	23,285
Total	344	54,260	167,455	222,059

Table B6.43.—Total drivers in motor-vehicle traffic accidents by occupation and severity for passenger cars registered in Massachusetts: 1953

incurring costs in property-damage-only accidents were pedestrians.

One in four of the persons incurring costs in fatal accidents was driving. Thirty-one percent were occupying the right front seat.

In personal injury accidents ½ of all the persons incurring direct costs were driving.

The most striking thing about Table B6.43 is that craftsmen, foremen, and skilled laborers make up 15 percent of the State's employed population, but this group gets involved in 23 percent of the accidents. In all the other employed population groups the percent of population is more than the percent involved in traffic accidents.

Table B23.03 shows vehicle involvements distributed to different cost groups.

Fifty-six percent of the drivers involved in motor-vehicle traffic accidents experience direct costs of less than $95, but almost fifteen percent experience direct costs of $395 or more.

One in every five drivers involved, experiences direct costs of from $45 to $95, and one in ten experiences very nominal or no cost whatsoever.

Seventeen percent of rural involvements as against fourteen percent of urban involvements fall in the $395 or more cost group.

The last table, B23.08, lists vehicle involvements by type of accident. This table shows that three types of accidents — head-on, rear end, and angle account for 72 percent of all passenger-car involvements. Angle-type accidents alone account for 43 percent of the involvements.

Seventy-three percent of all non-collision involvements result in direct costs of $395 or more.

Thirty-four percent of all pedestrian involvements result in direct costs of $395 or more.

Thirty-two percent of drivers involved in head-on collisions experience direct costs of $395 or more.

It is hoped that sufficient evidence has been presented to justify the conclusion that the cost of traffic accidents can be accurately determined and correlated with other known facts in such a way as to make them of great practical value in traffic accident prevention, highway planning, and highway program promotion.

Table B23.03.—Total vehicle involvements in motor-vehicle traffic accidents by population group and direct costs for passenger cars registered in Massachusetts: 1953

Population group	Direct costs								
	$0.01 to $4.99	$ 5.00 to $24.99	$25.00 to $44.99	$45.00 to $94.99	$ 95.00 to $194.99	$195.00 to $294.00	$295.00 to $394.99	$395.00 and more	Total
Rural areas	1,959	2,774	2,625	5,248	2,926	2,561	3,108	4,363	25,564
Urban areas having population of:									
1 - 2,500	-	181	362	181	-	-	-	-	724
2,501 - 10,000	1,327	603	995	241	1,177	422	452	886	6,103
10,001 - 25,000	3,136	5,488	5,006	4,038	5,062	2,471	1,777	4,692	31,670
25,001 - 50,000	2,924	2,925	5,307	6,058	4,669	1,957	1,805	4,219	29,864
50,001 - 100,000	3,647	7,418	6,634	7,416	5,695	4,097	2,892	6,879	44,678
100,001 - 250,000	4,492	3,798	5,790	8,954	7,023	3,102	1,505	5,006	39,670
250,001 - 500,000	-	-	-	-	181	-	-	181	362
500,001 - 1,000,000	3,767	4,130	6,000	11,667	6,840	3,344	1,533	5,962	42,243
1,000,001 and over	-	-	-	181	-	-	-	-	181
Urban area total	19,293	24,543	30,094	38,736	30,647	15,393	9,964	27,825	196,495
Total	21,252	27,317	32,719	43,984	33,573	17,954	13,072	32,188	222,059

Table B23.08—Total vehicle involvements in motor-vehicle accidents by type of accident and direct costs for passenger cars registered in Massachusetts: 1953

Type of accident	Direct costs								
	$0.01 to $4.99	$5.00 to $24.99	$25.00 to $44.99	$45.00 to $94.99	$95.00 to $194.99	$195.00 to $294.99	$295.00 to $394.99	$395.00 and more	Total
Collision with:									
One or more motor-vehicles									
Headon	1,687	1,747	1,808	4,033	3,763	3,073	2,199	4,997	23,307
Rearend	4,552	3,196	4,070	9,316	6,718	3,313	2,317	8,219	41,701
Angle	5,789	13,660	15,892	21,980	16,246	7,592	3,852	11,002	96,015
Sideswipe - same direction	1,236	874	2,201	2,443	2,533	904	934	1,386	12,511
Sideswipe - opposite direction	30	60	573	633	-	422	241	483	2,442
Turning movement	362	1,689	3,388	1,176	1,146	-	362	693	8,716
Parking maneuver	2,413	784	1,629	1,478	965	573	181	181	8,204
Backing in traffic lane	1,840	1,689	724	30	181	-	30	31	4,525
Other	30	-	181	-	362	211	60	180	1,024
Unknown	211	211	-	181	-	30	30	31	694
Total	18,150	23,910	30,366	41,270	31,914	16,118	10,206	27,203	199,137
Pedestrian	1,353	723	90	301	842	570	451	1,563	5,893
Railroad train	-	-	362	-	-	30	-	62	454
Streetcar or trackless trolley	181	-	-	-	-	-	-	60	241
Bicycle or scooter	1,024	241	241	90	150	-	60	38	1,844
Animal or animal drawn vehicle	-	-	-	-	1	362	181	1	545
Fixed object	543	784	393	1,026	394	844	1,208	2,340	7,532
Other object	-	1,267	1,287	1,086	211	-	30	32	3,893
Noncollision	1	362	-	211	61	30	906	888	2,459
Unknown type	-	30	-	-	-	-	30	1	61
Total	21,252	27,317	32,719	43,984	33,573	17,954	13,072	32,188	222,059

New Haven's Pigeon Hole Garage

by William R. McGrath
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On April 29, 1955, the New Haven Parking Authority was just over 3½ years of age. It had in successful operation a total of 339 parking spaces in three leased parking lots, and 96 spaces in one metered parking lot. On that day under the aegis of Mr. Herbert L. Lapham, Chairman of four months tenure and with the active support of the Honorable Richard C. Lee, Mayor of New Haven, the Authority undertook its first development of major proportions. It voted to create, in the heart of the retail area, a combined parking facility consisting of two surface lots of 164 car capacity, joined with and to be operated in conjunction with a "Pigeon Hole" mechanical garage of nominal 304 car capacity. It was to be the first municipal agency to employ this particular type of mechanical facility in its parking program.

This major undertaking which had long been desired was made possible only through the efforts of the administration of Mayor Lee who only a few weeks previous had obtained a basic change in the original State Enabling Act which granted the privilege of backing revenue bond issues with curb parking meter funds. He had also directed the four months old Traffic & Parking Department to serve the Authority in all matters and had enlisted the aid and cooperation of all other city departments in applying their specialties to the needs of the Authority. This is the story of the construction and the first six months' operation of the facility.

Construction Period

A major consideration in the selection of the type of garage was the rapidity with which it could be erected and put into operation. The Authority had been informed that 75 working days were sufficient to erect this structure. It was felt that minimum time lapse was a most important feature considering the critical need for additional parking in Central New Haven. The chronology of events listed below demonstrates that not only in construction of the garage itself but in the many necessary preliminaries, all time delays were held to a minimum.

STATE - COURT - ELM
CONSTRUCTION PERIOD

April 29, 1955 — Vote of Parking Authority to construct.
May 17 — Approval of project by Board of Aldermen
July 5 — Ground breaking ceremony.
August 15 — Foundations completed.
September 15 — First steel raised.
November 2 — Opening Day ceremony
December 12 — Project fully operating

Just 187 days elapsed from the time the Parking Authority took its vote until the Opening Day Ceremony was conducted.

Figure 1
September 10, 1955

Figure 2
November 15, 1955

The visual record of these activities is shown in Figures 1 and 2. Figure 1 taken September 10, 1955 shows a church being demolished on one portion of the site and the garage site with the foundations completed, rail bed for the tracks of the mobile elevators in place and the first shipments of steel lying on the ground. The parking lot in lower center already existed and merely awaited incorporation into the overall plan. Figure 2 taken on November 15, 1955 shows the entire facility in operation with connecting ramps having been provided between the lots and the garage.

The site plan for the entire facility is shown in Figure 3. A basic principle in assemblage of properties of this unusual configuration was the minimization of destruction of existent commercial properties. Only one business building formerly located where the garage now stands was demolished. The only other major structure on the site was the church, which at the time of acquisition was no longer in use. Still further, this unusual land plot provides access to three of the four streets.

The necessary selection of a mechanical type garage is apparent for this site. It was not possible to develop any ramp type structure of reasonable dimension for a site of this nature.

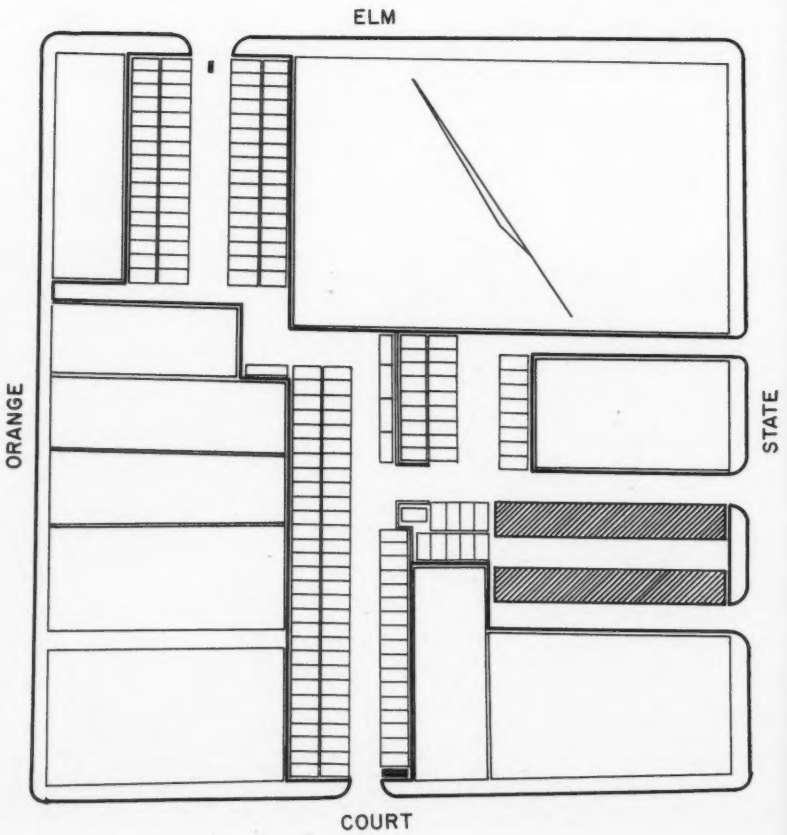

Figure 3

A constant reminder every 24 feet

As a constant reminder to the motorist that safe driving is imperative, this slogan plate is included as standard equipment on every DUNCAN-MILLER Model "60" Meter.

Initiated over two years ago, thousands upon thousands of these safety slogans occupy conspicuous street and parking lot locations.

DUNCAN-MILLER is proud to be doing its share in the interest of public safety.

DUNCAN

DUNCAN PARKING METER CORP.
835 NORTH WOOD STREET, CHICAGO 22, ILLINOIS
FACTORIES: HARRISON, ARKANSAS AND MONTREAL, P.Q., CANADA
Manufacturers of fully automatic and manual parking meters.

Still further, the mechanical type garage occupies only a small portion of the total land area. There remains potential expansion with the same type of facility on the Elm St. site and in the mid-block portion of the site. Whether such expansion will take place will hinge entirely on the growth of usage of the facility with time.

The Pigeon Hole structure is but 58 ft. in width and 143 ft. in length. It is located on a plot of land only 94 ft. in width. Its operational layout, shown in Figure 4, permits entrance directly from State St. or other streets by way of the interior connection system. All entrance is on the north side of the structure and exit is to the south. The structure itself consists of exposed steel columns and steel plate decks in two tiers, siding a central elevator shaft which contains three mobile elevators. From the ground to the roof eight parking levels are provided with an overall structure height of 56 ft. The entire structure was brought to the site in prefabricated form and assembled with bolts at all primary connections. The only on-the-job construction activity consisted of welding the deck plates for drip control and custom construction of the waiting room and cashier's office.

The disposition of the entire $1,200,000 bond issue which financed this facility is shown in Table I. It is apparent that the garage, which provides 65% of the site capacity entailed the major costs. The details of construction and equipment expenses for this portion of the facility are shown in Table II.

Many items which could have been included in the prime contract were omitted initially rather than delay the project while necessary specifications were drawn. All items listed however, are items determined by the Authority to be necessary for a complete useful structure. The safety gates and fence, for example, enclose the entire ground floor area, excluding all persons other than elevator operators from the elevator shaft area. The gates are an integral part of the elevator operation with one placed at every entrance and exit point. Each elevator is so designed that it cannot leave such point unless the gate is closed. These gates were initially omitted because the details of the requirements of the state regulatory agencies had not been determined.

TABLE I

STATE - COURT - ELM COSTS

Capacity ITEM	304 STATE	96 COURT	68 ELM	TOTAL
Land	$191,405.15	145,362.52	106,569.38	443,337.05
Construction	474,371.04	1,145.81	30,876.93	506,393.78
Equipment	15,323.44	941.54	941.55	17,206.53
Professional fees				32,731.77
Interest during construction				19,500.00
Previous obligations				38,033.78
Debt service reserve				117,350.00
Unexpended contingency				32,160.42
				$1,206,713.33

The tool shed was furnished by decision of the Authority when it became apparent that it would not be desirable to use any portions of the waiting room for such storage inasmuch as tools, spare parts, supplies of hydraulic oil, cleaning compounds, etc. must be kept on hand at all times and such items are in use daily. It is evident that either a separate storage building or a different office design is required if the public is not to be disturbed by such operations. The standby power equipment was added to permit operation of any one elevator independently of any power source. No manual operation of the elevators is possible as designed and it seemed essential to provide means of removing vehicles in emergency situations. The

TABLE II

CONSTRUCTION & EQUIPMENT COSTS

PIGEON HOLE GARAGE

ITEM	COST	
Construction		
Primary contract	$444,856.00	
Extra foundation work	3,000.00	
Safety gates & fence	11,901.64	
Signs	5,239.38	
Storage shed	1,570.00	
Sound system	1,594.56	
Spare parts	1,400.91	
Performance bond	3,336.42	
Construction incidentals	1,427.13	$474,371.04
Equipment		
Standby power unit	5,955.00	
Steam jenny	698.00	
Time clocks	551.10	
Tagging discs	390.00	
Fire extinguishers	390.00	
Tools	375.75	
		8,359.85
Office furnishings		
Air conditioner	1,210.00	
Lockers	204.00	
Typewriter	335.00	
Desk	136.00	
Adding machine	234.00	
Cash register	650.00	
Safe	195.52	
Chairs	119.80	
Water cooler	274.00	
Water heater	204.68	
		3,563.00
Initial supplies		1,990.55
Miscellaneous costs		1,410.04
TOTAL		$489,694.48

cost of the structure as equipped by the Authority amounted to $489,694.48

Operational Period

The period of operation of the overall facility actually began September 1, 1955 when the Court St. portion of the site was acquired. At that time the Manager was retained and allowed to retain one attendant to begin operations. From that time onward as various portions of the facility became available more personnel were added. The Manager and those who were to operate the car parker machines in the garage were sent to Hartford, Conn. where a similar installation is in operation. There they spent several days in actual practice of operations through the courtesy of the owner of that facility. They also spent whatever time was available observing construction details of machinery as it was being installed. It was believed that this was the correct approach to introducing the operating personnel to the machinery —unique in the City of New Haven. By November 2, a full staff had been organized and trained and continued operation until the first of January 1956. On the first of January the operation was put on a budgeted accounting system and has been operated in that manner since. The annual budget adopted for operation during 1956 is shown in Table III.

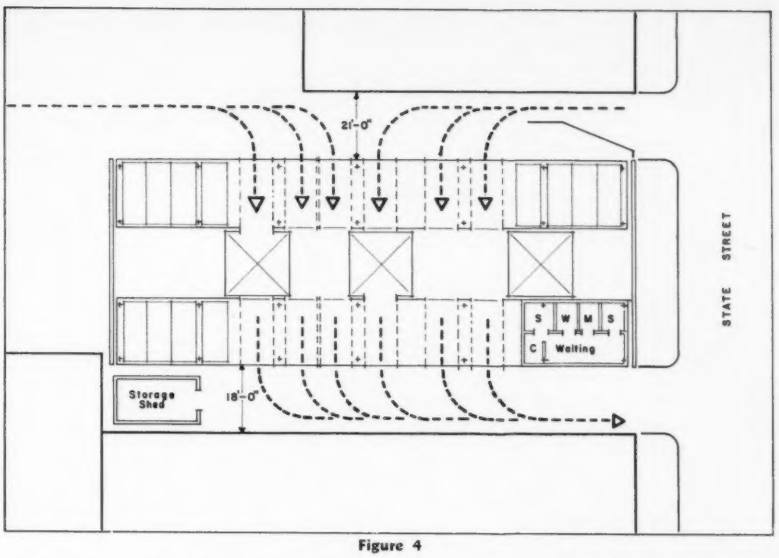

Figure 4

Comparison of that allocated for the first six months and actual expenditures for the first six months are also shown.

It is evident that the only serious discrepancy in expenses as related to budgeted amount occurred in the utilities allowance. Meager information was available on this item at the outset and complete investigation was conducted to determine whether expenses could be reduced here. It appears that the electric power demand of this type garage is quite high and cannot be reduced substantially. The main motive power consists of a 40 HP electric motor per elevator. It was learned that the installation upon which the original estimate was based was a smaller installation with a 24-hour per day operation. This latter factor particularly placed that garage in a position to obtain demand rate from the local utility company. However this operation is 12 hours per day and demand rates cannot be applied. As a result the more expensive commercial rates must be utilized.

Personnel costs are, of course, the greatest single budgeted item. The personnel provided for in the budget are shown in Table IV.

The number of personnel shown does not indicate the exact number of different persons employed because of the greater than 40-hour week and the advisability of using part-time help during peak periods and running short-staffed in slack periods. On the average, however, the number of personnel indicated are the number in attendance at any one time.

The rate schedule established for the entire facility is as follows:

$0.25 1 hour
$0.40 2 hours
$0.10 each additional hour
$0.75 maximum
$15.00 monthly

The usage of the parking facility during the first six months of 1956 is of interest to examine. In the development of the revenue estimates there had

TABLE III

OPERATING BUDGET AND COSTS

ITEM	1956 Budget	Jan.-June Allotment	Jan.-June Expenses
Personal services	$40,000	$19,720	$20,036.57
Utilities	1,800	900	2,062.57
Materials & Supplies	2,300	1,755	1,037.94
Contractual	2,000	1,010	958.33
Administrative	2,000	1,010	806.82
Maintenance	2,400	1,200	1,099.48
Insurance and benefits	5,000	3,500	2,509.52
	$55,500	$29,095	$28.511.23

TABLE IV

PERSONNEL COSTS

NUMBER	POSITION	RATE PER HOUR	ANNUAL TOTAL
1	Manager		$ 6,500
3	Elevator operators	$1.50	13,200
1	Tag man	1.15	3,380
4	Attendants	1.15	13,540
1	Cashier-bookkeeper		3,380
		TOTAL	$40,000

been furnished an estimate indicating that 218,000 vehicles would use the facility during its first year of operation—which usage would be expected to grow to 364,000 vehicles by 1960. It was found that although annual estimates are sufficient for financing purposes, they are not adequate for maintaining routine analyses of operations. Accordingly, the seasonal variation in the use of other off-street facilities of the Authority and of the use of curb parking meters throughout the City of New Haven was analyzed to produce an anticipated seasonal variation. At the same time there was taken into consideration the growth of characteristic predicted for the facility. As a result of these analyses a monthly breakdown of the annual estimate was developed and compared with actual usage as it occurred during the first six months of operation as shown in Table V. It is interesting to note the difference did not exceed 9% in any month. The overall difference in usage was only 3%.

Shown in Table V is the breakdown of usage by the three portions of the facility. Here it is seen that, as could have been anticipated, the garage, although nearly double the capacity of the lots, by no means accommodated twice the number of vehicles. This was to be expected because it is a new type of facility and it is necessary that a process of education be undergone to cause a transfer of use from the parking lots to the garage structure. The trend of growth indicated in the total shows that such transfer of usage is occurring.

These analyses demonstrate that proper consideration and understanding of seasonal variations is essential to revenue bond financing, particularly during the early years of operation. In this particular instance the estimates indicated that by the end of the first year the facility would earn sufficient income to pay all operating and capital costs. However, seasonal fluctuations have caused fixed and operating costs on a monthly basis to exceed monthly income during certain months of the year. If this is properly understood it is easily shown that such conditions are simply a matter of fluctuation and are not cause for concern over the possible inability of the facility to pay its full costs. If the use trend continues as indicated it can be expected that this facility will meet estimates by year's end.

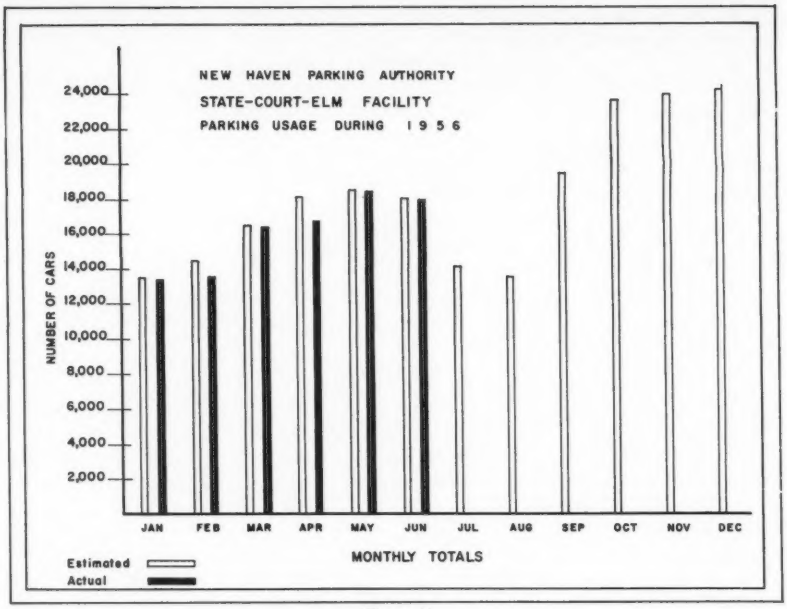

Figure 5

Maintenance

As it might be expected in the operation of a structure which is basically a large machine for filing automobiles, maintenance is one of the most important and critical matters in the operation of the facility. There was devised an Operations Manual with particular stress on preventive maintenance, which set up routine inspections for daily maintenance, weekly maintenance and monthly maintenance. The lift dolly, which is the very heart of the operating machine, requires considerable attention. It has cables which must be inspected for proper tension daily. It has friction points which must be oiled or greased and its overall structure must be cleaned daily to prevent accumulation of dirt and grease. The parking machines themselves have many grease and oiling points which must be attended at least weekly; and, there is required at least on a monthly basis, attention to all filters, tightening and lining of wheels and other variable parts. It was found that it is necessary to have at least one person on the premises at all times with sufficient mechanical ability to know the condition of the machinery and to know what steps to take in its proper care and maintenance. During the first six months maintenance allotment was expended on many items due to accidental damage which was not attributal to the machinery but to the inexperience of the operators. It has been learned through experience here that the operators must know the conditions of the machinery at all times if breakage is to be avoided.

It is not customary for the machinery to be equipped with any manual operating features to avoid the possibility of serious delay to parkers in the event of a complete power failure or other breakdown of similar major proportions. The Authority is proceeding with the acquisition of an auxiliary gasoline driven engine which

(Continued on page 77)

TABLE V

STATE - COURT - ELM FACILITY

Number of Vehicles Parked

Month	Court	Elm	State	Total	Estimate
January 1956	5,248	4,126	4,004	13,378	13,550
February	4,432	4,359	4,753	13,544	14,415
March	4,772	4,742	6,824	16,338	16,400
April	4,170	5,167	7,295	16,632	18,090
May	4,785	5,462	8,274	18,521	18,554
June	4,408	5,504	8,099	18,011	18,056
	27,815	29,360	39,249	96,424	99,065

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Reference Notes

Safety and Free Flow Of Traffic

Statement submitted by
CHARLES W. PRISK, President
Institute of Traffice Engineers
to the California Assembly Interim Committee on Transportation and Commerce, at a hearing June 11 & 12, 1956, at San Francisco.

CONTROL OF ACCESS is sometimes regarded as a relatively recent highway refinement. In many ways, however, nearly all of the important design advancements that have gradually evolved to make our highways safer, serve also to control access. The grade separation of intersecting highways, for example, is control of access to the extent that the conflicts created by entering and leaving vehicles are eliminated through design of the separation structure and its connecting ramps for interchange traffic. Similarly, the physical division of a highway with a median area introduces access control of a degree because it prohibits or at the very least discourages left-turn access to abutting property.

As most of you will know, control of access limits or denies the rights of owners or occupants of abutting property to have direct access to the highway. Access control can be likened to a giant insulator thrown around the highway to guarantee retention of all its traffic-handling capabilities. With the annual loss from traffic accidents estimated by the National Safety Council at nearly $5 billion, it is worth noting that control of access has been accompanied by some remarkably good safety records, even in its earliest applications. One example is the Merritt Parkway in Connecticut, where for almost 20 years high speeds and heavy volumes have been accommodated with accident and fatality rates only half as high as those found on the parallel U. S. Highway 1.

A few years ago the Bureau of Public Roads invited the cooperation of the State highway departments in a survey of accident experience on controlled access routes. This effort, still continuing, has produced convincing evidence of the superior safety associated with control of access.

In most instances, data were obtained for pairs of routes or for abutting sections of highway serving the same general area, one highway with full or partial control of access, and the other a conventional major traffic route without access control. The access control nomenclature we use follows the standard definitions approved by the American Association of State Highway Officials. In other words, "full control of access" means that access is provided with selected public roads only and that crossings at grade and direct private driveway connections are prohibited. Where the term "partial control of access" is mentioned, the highway is of a somewhat lower order, and may have some crossings at grade and some private driveway connections.

Up to the present, we have accident records for more than 2,100 miles of street and highway, classified according to full, partial and no control of access. On this mileage, data for approximately 108,000 accidents, resulting in more than 2,500 fatalities, have been compiled. The gross rates calculated show an average of 171 accidents per 100 million vehicle-miles of travel on highways with full control of access, compared with an average rate of 240 for highways with partial control of access, and 408 for those with no access control. Based on accidents per 100 million miles of driving exposure, then, the highway with full control of access is nearly two and one-half times safer than the conventional highway without access control.

A similar comparison has been made of fatality rates, that is, the number of persons killed per 100 miles of travel. Highways with full control of access have an average of 2.8 fatalities per 100 million vehicle-miles, those with partial control have a rate of 9.6, and those with no control average 8.0. Now you will notice that the highways with partial control have the highest rate, whereas in terms of accidents they were in the intermediate position. This could be due to the relative infrequency of the hazards that exist on a highway with partial control of access. Drivers using an otherwise high-type highway do not readily adapt their behavior to the unexpected, infrequent hazard, and the accidents that do occur are often more severe.

Another facet of this study, in which we are pleased to have 23 States now participating, concerns the types of accidents that occur. The experience shows that on highways with full control of access, approximately 60 percent of the accidents involve rear-end collision or same-direction sideswipe. On routes with partial or no access control, the crashes in this category are roughly 40 percent of the total.

The higher percentage of rear-end or same-direction collisions on freeways is a matter for serious concern. Checking further, we find that the vehicle-mile rate for rear-end collisions on rural freeways is about 90, which is substantially the same as that for rear-end collisions on other rural highways covered by the study. On urban freeways, however, rear-end collisions occur at an approximate rate of 130 per 100 million vehicle-miles, and at twice that rate on urban routes without access control. If the freeway has an Achilles heel, it is in its susceptibility, accidentwise, to driving actions that set up

BACK THE ATTACK ON TRAFFIC ACCIDENTS

With annual traffic deaths pushing insidiously toward a catastrophic total of more than 42,000 persons — an average of 115 each day — highway safety becomes an issue of real concern for every reasoning member of our population. Highway users and highway administrators alike need to concentrate on effective remedies — now!

The remedies are well known — but the officials responsible need lively support from the public to get the necessary reforms into action. In addition, each of us, as a driver or a pedestrian, can contribute materially by setting a safe example with our own response when behind the wheel or on foot.

The Institute of Traffic Engineers recognizes and readily accepts its responsibilities for safer streets and highways, and urges its members to join with other highway officials in full support of the "Back the Attack on Traffic Accidents" program.

— A statement of the Institute in support of the National Safety Council's all-out safety effort beginning in December, 1956.

speed differentials, and rear-end collisions. In this connection, the points of entrance and departure are critical ones, and further design refinements will be needed on ingress and egress facilities.

It is heartening to find that on highways with full control of access, fewer than 10 percent of the accidents involve head-on collision, angle collision, and collision with pedestrians. The corresponding values for highway sections with partial or no access control are much higher, ranging from about 35 to 50 percent. This difference is of much importance, for it involves those types of collisions that most frequently cause serious injury or death. The lower incidence of these severe collisions accounts in the main for the low fatality rate on today's modern freeway.

To sum up the pracical values of access control to highway safety, we need only reflect on a few 1955 accident figures. On all rural highways, nationwide, there were 8.4 fatalities per 100 million vehicle-miles, in contrast with 3.2 for the representative rural freeways for which we have data. Likewise, on all urban streets throughout the United States, the fatality rate for 1955 was 4.2, whereas the urban freeways studied have an average of only 2.3 fatalities per 100 million vehicle-miles.

A few typical comparisons from specific areas are shown below.

The individual State submissions are replete with evidence that today's freeway, the fully controlled access highway, can be expected to be the scene of only about a third as many deaths and less than half as many accidents per unit of travel as the conventional major highway.

One final fact has not been documented directly among the outstanding safety advantages recited for highways with full control of access. It only adds more lustre to the record, though, when we realize that the low accident and fatality rates identified with freeways are being achieved in the environment of higher speeds and heavier traffic volumes than are typical of our more conventional highways. It would appear that lasting safety cannot be purchased any more cheaply than through the medium of access control.

State	Year	Facility	Control of access	Fatality rate*	Accident rate
Calif.	1954	All Freeways	Full	1.9	127
	1954	All Rural State Highways	All types	8.4	230
Va.	1954	Shirley Freeway	Full	5.9	142
	1954	U. S. 1 (parallel)	No	12.6	613
D. C.	1950-54	Urban Freeways	Full	1.2	129
	1950-54	Selected Streets	Partial or no	1.8	575
Ill.	1954	Edens Expressway	Full	2.3	153
	1954	U. S. 41 — Skokie Rd.	Partial	11.1	256
Mich.	1954	Detroit Industrial Expressway	Full	2.5	140
	1954	U. S. 112	No	4.5	495
Md.	1954	Baltimore Washington Expressway	Full	5.7	114
	1954	U. S. 1 (parallel)	No	11.9	531
N. H.	1950-55	New Hampshire Turnpike	Full	2.4	–
	1950-55	U. S. 1 (parallel)	No	8.4	–

NEW HAVEN'S PIGEON HOLE GARAGE

(Continued from page 74)

may be used to supersede any of the regular driving equipment.

It has been found that the weekly and monthly type maintenance work cannot be performed easily during normal working time of the machinery. Accordingly, it is necessary to schedule regular maintenance work on the machinery during shut-down periods, either evenings or Sundays.

Improvement Plans

It must be considered that to merely construct and put into operation a facility of this scope and nature is not sufficient. The Authority has been constantly seeking methods of improving both its service and the general conditions of the operation.

From the service viewpoint the Authority has taken steps to see to it that the best appearance is presented at all times. Cleanliness of the entire area is considered a must and all attendants are outfitted with uniforms and distinctive emblems. Service to the customers includes the provision of free-checking service for the shoppers and the distribution of Chamber of Commerce materials and maps and other information leading to better relations with parkers.

A major program is presently being studied which would cause the facility to be the center of activity of the entire block in which it is located. A glance at the site plans in Figure 4 makes it evident that to a great extent this facility is bordered at all points by commercial buildings. Present plans call for an integrated program to cause these enterprises to improve their rear entrances so that the parkers may have direct access to and from these bordering properties. While the undertaking of such work is not a function of the Authority it is considered in the best interest of the parking public that it be done and that the Authority encourage these private owners to do so. When the plan is fully developed the parking area will be the heart of a small self-contained shopping and business area.

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ORGANIZATION

FULL ADDRESS

Institute Affairs

New Officers Elected; Hurd Appointed to Board

J. Carl McMonagle, Assistant Director of the Highway Traffic Safety Center, Michigan State University, was elected President of the Institute at the annual meeting in San Francisco. He succeeds Charles W. Prisk, who remains a member of the Board of Direction as immediate past president.

Elected Vice Presidents were Joseph E. Havenner, Director of Engineering and Technical Services, Automobile Club of Southern California, Los Angeles, and Matthew C. Sielski, Director of the Safety and Traffic Engineering Department, Chicago Motor Club.

In a lively contest, Edward G. Wetzel, Assistant Chief Planning Division, Port of New York Authority, was elected Secretary-Treasurer.

Elected to the Board of Direction from District 3 was George W. Howie, Director of Public Utilities and Traffic, Cincinnati. From District 5, Robert A. Burch, Traffic Engineer, North Carolina State Highway and Public Works Commission, was elected Director. Re-elected from District 6 was Herbert C. Higgins of the Washington State Highway Department.

Hold-over members of the Board were Gordon K. Gravelle, now residing in New York but representing District 2, and George J. Fisher, Wichita, Kansas, representing District 4.

A vacancy on the Board was created when Director Wetzel was elected Secretary-Treasurer. At the first meeting of the new Board, the day following the election, Fred W. Hurd, Director, Yale Bureau of Highway Traffic, was appointed to fill the unexpired term from District 1.

Annual Meeting Reports

Report of the President

It is customary at this point for the President to give an account of himself and the Institute for the administrative year now coming to a close. In approaching this task, I realize several dangers. First, I could give you a series of statistics on our membership growth, our financial condition, our progress in production of technical reports and similar matters. Based on past experience, it appears that whatever figures the President chooses at a time such as this, he is reasonably certain to be contradicted in some technicality by reports given a few minutes later by the Secretary-Treasurer, the Executive Secretary or some other officer. That is the first danger. I, therefore, only wish to assure you that the Institute has broken through the 1000 member size barrier at this very meeting; I honestly believe that we are currently healthy and sound from the fiscal standpoint; and I feel that we have advanced technically and professionally during the year just past. If you wish to know in more detail something of the magnitude of these developments, I am sure the reports that follow will provide this information. By this device, then, I not only seek to avoid conflict or contradiction with these later reports, but I hope to impress upon each of you my full conviction that your Institute membership is something to be very proud of.

Another danger I see in reporting on the Institute's activities since we met last October at Pittsburgh is the possibility — no, the probability that I would fail to acknowledge accurately and completely even the major contributions that so many of you have made to such success as the Institute has attained. The processes of Institute government are far from being a one-man job. Oftentimes in a recital of thanks for this and that, I just plain overlook people that have helped a great deal. In view of this weakness of mine, I shall avoid that danger by repeating my recent assertion that, whatever genuine achievements were realized in the Institute during 1955-56, were due not to the prodigious effort of any one or more individuals, but to the solid impact of much collective thought and effort. As one who had the high honor of serving as your President, I speak for the entire membership in thanking any and all who have helped the Institute move ahead.

Only yesterday I came across Longfellow's observation that "We judge ourselves by what we feel capable of doing—Others judge us by what we have done." From this I sense that we would always be wise to be conservative in taking stock of Institute accomplishments. It is not so much our valuation, but that of others that truly counts. In this connection, the relocation of our headquarters from New Haven to Washington, D. C., which occurred on June 1 this year, was a matter of major consequence. The smooth-running operation gradually being approached since that date, under the direction of a new Executive Secretary and a completely new headquarters staff, has earned high esteem among many organizations with whom the Institute has working contact.

Your Institute had a part, small to be sure, but nonetheless positive, in obtaining the progressive Federal highway legislation enacted by the last Congress. By this very action we more deeply dedicate the Institute's objectives and, in fact, ourselves to the gigantic effort now underway to overcome accidents and congestion. We are with common interests joined in many technical studies and administrative projects that we believe are geared to this new tempo. Work on a new edition of the Traffic Engineering Handbook has been initiated. The Institute's policies have been consolidated and codified for more clear-cut and consistent procedural action and to point up areas where major decisions will be required. Better assimilation of younger members into the Institute, always a great and real need, will make for more productive traffic engineering manpower and should contribute toward an increase in the trickle of research findings so valuable to the expanded highway program.

(1) With the challenge thrown down by the accelerated highway program and the engineering manpower shortage; (2) with the potential for greatly enlarged service to members and to the public interest, which rests with our new Washington staff; and (3) with the responsible devotion to duty such as was shown among the competent men I had the great privilege of working with this year, I expect the future of the Institute will be marked with continued progress. But as I close, Longfellow's words come back — "We judge ourselves by what we feel capable of doing — Others judge us by what we have done."

I hope that in today's reports, and always, we shall keep the distinction before us as we examine the professional stature and attainments of the Institute of Traffic Engineers.

Report of the Secretary-Treasurer

The membership and financial conditions are best described by charts. Figure 1 shows the great increase in

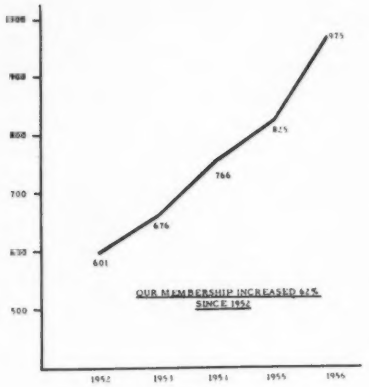

Figure 1

membership since 1952, and Figure 2 shows the budget figures for the same years.

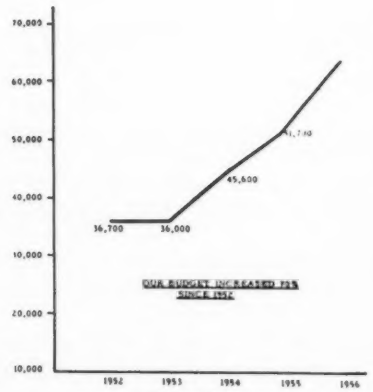

Figure 2

The source of our income today is shown in Figure 3, and the distribution of expenses in Figure 4.

WHERE DOES OUR MONEY COME FROM?

	Am't.	%
1. Annual dues, entrance fees, sustaining organizations	17,500	28
2. Advertising	34,000	54
3. Subscriptions, articles, etc.	7,150	11
4. Proceedings, handbook, publications	3,300	5
5. Miscellaneous	850	2
	$62,800	100%

82% is dependent upon dues and advertising.

Figure 3

Report of the Executive Secretary

The year just past has been one of real accomplishment for the Institute. The membership growth and the financial developments have been set forth by the Secretary-Treasurer, and I think we can all take pride in them.

Interest in the Institute is increasing all across the board. This is apparent in the number of applications being received at headquarters, and in the kind of people who are interested in joining the organization. It is evident in the recognition given the Institute by others — such as the decision by the National Committee on Uniform Traffic Laws and Ordinances to ask ITE to designate six representatives, when in the past we had no official representation on that important group. It is evident in the "Voice of Firestone" salute earlier this week.

My special task in this report is to tell you of the more practical and routine aspects of the Institute's year — staff, headquarters office, publications, and the like. The highlight of the year has been the move of the headquarters office to Washington. We owe a very large debt of gratitude to Yale — but it is very nice to be in our own offices, with some room to move around. Those of you who saw the office in New Haven will understand now when I tell you we have over a thousand square feet of floor space in Washington.

The physical move was not easy — and it was complicated by the fact that we started in Washington with a brand-new staff — including the Executive Secretary. Everyone was very kind and very considerate — and eventually we got the wheels turning after a fashion. We think we have a reasonably efficient operation now, and we would be delighted to have all of you drop in to see us.

We spent some money, of necessity, to acquire some furniture which we didn't have and needed, and we still need a few things. For instance, a couple of large framed pictures of Oregon's seacoast or Connecticut's Litchfield Hills or San Francisco's bridges would be very welcome.

A major part of the headquarters is currently devoted to the magazine. The able assistance of Dolf May and the complete cooperation of our printer enabled us to get the publication back on some sort of schedule this summer, and we actually mailed three issues within a 35-day period. As of September 1, Dolf has been devoting his full time to his new employer, Michigan State University, so the magazine responsibility is in the hands of your Executive Secretary and a corps of volunteer associate editors. Their assistance has been most welcome—and is going to be needed even more in the months immediately ahead.

Some of you may have known Jack Prince, vice president of the concern which prints our magazine, and the man who was more than anyone else responsible for keeping the magazine going along a period of years. You will be saddened to know that he passed away suddenly in August.

One of the last things he worked on was a plan to revise the make-up appearance of the magazine and you will see the results in the October issue. We hope you like it. If not—tell me about it. And above all, remember that it is your magazine and that your contributions are what keep it alive and important.

Our other publications are continuing, with sales of the Handbook holding up well. On our other materials we probably don't sell enough to pay the cost of storage space for the stock —but we hope we can increase this portion of our income. As the various technical committees report, we have the possibility of printed reports to add to our inventory — which is one means of building income as well as performing the more important task of creating a body of written knowl-

The Institute today is self-supporting, with an increasing membership and income.

WHERE DOES OUR MONEY GO?

	Am't.	%
1. Salaries	24,500	40%
2. Travel expense of staff	2,500	4
3. Office expense	8,100	13
4. Traffic Engineering Magazine	20,150	32
5. Proceeding, publications, etc.	3,550	6
6. Annual meeting	2,500	4
7. Miscellaneous	400	1
	$61,700	100%

77% is on advertising and salaries.

Figure 4

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edge which is one of the marks of a profession.

One other headquarters task of some magnitude has been the attempt to arrange or at least guide the presentation of the Institute's awards. So far, of the eight states and 24 cities, eleven have been presented and most of the others are set up.

Local sections play an important part in Institute affairs, and we now have thirteen with the organization of the Mid-Atlantic Section. These groups have a total of 806 members and affiliates, held 57 meetings last year, and published 35 issues of newsletters. In addition, two student chapters were active, at Yale and Illinois, and we expect more this year.

It is my fond hope that I will have a chance to visit all of the sections during the coming year. In these groups lies the basic strength of the whole organization — and we need to develop closer contacts.

I cannot close without saying how fortunate I feel to be in this position of serving you — and how especially grateful I am that President Prisk was in office when the move to Washington was made. Without his help my task would have been much more difficult.

The headquarters staff is in Washington and at your service. It is your association and your office — and I hope you will make full use of the facilities. In turn, I pledge to you my best efforts as your secretary and representative.

Board Meetings

1955-56 Board of Direction Meets in San Francisco

The 1955-56 Board of Direction met in San Francisco the day before the Annual Meeting and considered a full agenda. Important action included:

(1) Approval of the appointment of Burton W. Marsh as the ITE representative on the Matson Memorial Award Board.

(2) Review of the invitation for the ITE to name 6 representatives to the National Committee on Uniform Laws and Ordinances.

(3) Approval of the Resolutions Committee consisting of A. F. Malo, Chairman, J. F. Exnicios, C. E. Fritts, J. A. Head, A. H. Vey, M. H. West, and T. T. Wiley.

(4) Approval of a Tellers Committee consisting of L. A. Braff, Chairman, Stewart Fischer, E. E. Lewarch, and A. R. Pepper.

(5) Approval of the report of the Judges of the Traffic Engineering Achievement Award program and referral of their suggestions for improvement of the program to the TE Awards Committee already scheduled to report to the January meeting.

(6) Approval of the general principle of a plan to provide life insurance for ITE members on a wholesale basis and authorization of a committee to explore the matter further, including canvassing the membership for an indication of interest in such a plan.

(7) Approval of the transfer of 15 members to a higher membership grade. (Names elsewhere in this issue).

(8) Approval of 36 new members, including one Affiliate and one Honorary. The latter, Commissioner C. D. Curtiss of the Bureau of Public Roads, became the 1000th member. (Other names elsewhere in this issue.)

(9) Decision to print the report on the ITE Work-Conference on 1955, after final approval by participants and Board members.

(10) Accepted the report of the Secretary-Treasurer, showing 986 members at the beginning of the meeting, and acceptable financial condition as of August 31, 1956.

(11) Authorization to the Executive Secretary to bring up to date the ITE list of consultants on the basis of a questionnaire survey.

(12) Approval of six new sustaining organizations, and decision for an annual review by the Board of the entire list of such organizations. (New names listed elsewhere in this issue.)

(13) Approval of revision of the Constitution and By-Laws of the Canadian Section and of Constitution and By-Laws for new Mid-Atlantic Section.

(14) Decision to have the Executive Secretary investigate further the matter of identifying the Institute with the Engineer's Joint Council.

(15) Acceptance of the manual on conduct of joint Section-Board meetings prepared by a committee of the Board.

The 1955-56 Board of Direction — left to right—Bevins, Malo, Porter, Sielski, McMonagle, Prisk, Havenner, Higgins, Wetzel, Gravelle, Fisher.

(16) Acceptance of the summary of Board policies, with instructions to the Executive Secretary to continue such summarization, and expression of its thanks to Director Higgins and Mr. Robert Dunn for their work on the project.

(17) Approval of submission to the Board in advance of the January meeting of a plan for hospital and surgical benefits for Institute staff.

(18) Approval of the Technical Council recommendation that the Reference Notebook supplements be discontinued and pages of the magazine be utilized for distribution of such information in the future.

(19) Approval of resolutions proposed for presentation to the Annual Meeting.

(20) Receipt of report on plans for 1957 meeting in Detroit, and authorization to incoming president to appoint a 1958 Site Selection Committee, which reported later to recommend Miami.

New Board Meets Following SF Convention

The newly elected Board of Direction met in San Francisco on Friday, September 28. Important action included:

(1) Appointment of Fred W. Hurd to fill the vacancy created by the election of E. G. Wetzel as Secretary-Treasurer.

(2) Initiation of plan to employ legal counsel for the Institute.

(3) Acceptance of a report of its Membership Committee relating to Affiliate membership, proposing minor changes to bring ITE requirements into conformity with ASCE, with final action on report set aside until January.

(4) Decision to prepare slate of committee appointments by November 1, with authority to the President to appoint. Agreement on a new Department of the Technical Division to include all joint committee representatives.

(5) Appointment of an Annual Meeting Committee of the Board, and agreement to appoint a Resolutions Committee early, to be listed in the Yearbook.

(6) Decision to circularize the membership to obtain an expression of preference between August and September as a time for the 1958 meeting.

(7) Agreement to plan three years ahead for the place and date of the Annual Meeting, with the 1959 meeting to be discussed at the January Board meeting.

(8) Decision to transfer remaining funds of the Notebook account to the Institute's general funds after a final notice to subscribers.

(9) Review of current status of Handbook revision, with meeting of the Editorial Board reported. Agreement to discuss plans for revision with policy-making people of the Association of Casualty and Surety Companies.

(10) Decision to ask the Chairman of the Policy Committee to furnish all Past Presidents with Board minutes, condensations of Board policies, and similar material so they may be informed on Institute affairs and better able to advise the Board.

(11) Agreement that the President and Technical Vice President explore the possibility of a new "committee on research."

(12) Agreement to hold the January meeting of the Board in Washington at the time of the Highway Research Board meeting, and to accept the invitation of the Texas Section to meet in Houston in May or June.

Invitations Extended to Six New Sustaining Organizations

The Board of Direction, acting on recommendations of Institute members, voted at its September 24 meeting to extend invitations to six concerns to become Sustaining Organizations of the Institute. If all accept, this will bring the total number of such Sustaining Organizations to thirty-four.

Presentation of Charlotte (N.C.) Traffic Engineering Achievement Award to City Traffic Engineer H. J. Hoose by ITE Director Karl A. Bevins of Atlanta.

Invitations were authorized for the following:

Cataphote Corporation
Eagle Signal Corporation
Electronic Protection, Inc.
Ramp Buildings Corporation
Veon Chemical Corporation
Winko-Matic Signal Company

The Board pointed out in its discussion that no question of membership was involved in these invitations, and that any use of the term membership in connection with the companies so invited was contrary to the policy of the Institute. These organizations help support the Institute program through financial contributions, however, and through the designation of representatives, they make substantial contributions to the Institute's technical work.

RESOLUTIONS

Resolution No. 1

WHEREAS, there now exists a severe shortage of highway and traffic engineers, and

WHEREAS, the rapidly expanding program of highway construction further emphasizes an acute need for additional engineering talent, and

WHEREAS, this engineering shortage has grave adverse effects upon the nation's progress, economy, health, and safety;

NOW THEREFORE BE IT RESOLVED that the Institute of Traffic Engineers call upon state universities and other engineering colleges to critically review their curricula to determine that the proper attention is given to traffic and highway courses; and

BE IT RESOLVED that all public agencies be urged to review engineering salary structures to assure that adequate compensation is offered for engineering services commensurate with the Nation's needs and the competitive salaries of private industries; and

BE IT FURTHER RESOLVED that the Institute of Traffic Engineers invite all interested professional societies and associations to participate in a coordinated effort to strengthen the Nation's resources of traffic and highway engineering talent.

Resolution No. 2

WHEREAS, the United States of America is embarking upon a highway construction program of unprece-

dented magnitude in mileage and cost, and

WHEREAS, the purpose of this program is to provide new facilities for the safe, convenient, and economical transportation of persons and goods, and

WHEREAS, the full value of the new facilities can only be realized if they are located and designed with efficient operation as the basic criterion, and

WHEREAS, failure to achieve full capacity and safe, efficient operation will result in unnecessary waste, extravagance, and uneconomic transportation, and

WHEREAS, the safe and economical operation of these facilities is a traffic engineering responsibility;

NOW THEREFORE BE IT RESOLVED that the Institute of Traffic Engineers emphasizes to the various highway agencies the importance of traffic engineering in the planning and design of street and highway facilities and the necessity for consultation, review and approval by the traffic engineering agency which will operate the facility of all geometric and other features of the location and design which will in any way affect the safe, efficient use of the facility.

Resolution No. 3

WHEREAS, it is estimated that more than 40,000 persons will be killed this year on our streets and highways, and

WHEREAS, there will be a continued rise both in accidents and fatalities for the next several years unless a much more extensive and objective course of action is taken, and

WHEREAS, traffic safety requires the coordinated effort of the traffic and highway engineers, the enforcement agencies, safety councils, educators, automobile manufacturers, and all forms of public information media;

NOW THEREFORE BE IT RESOLVED that every traffic engineer redouble his efforts in applying traffic engineering principles and research to make our streets and highways safer;

BE IT FURTHER RESOLVED that the Institute of Traffic Engineers commend all agencies actively engaged in research and investigation in the safety aspects of vehicles and highways and especially those who have sponsored safety programs or who have promoted safety by any media as a public service; and

BE IT FURTHER RESOLVED that the Institute of Traffic Engineers calls upon its membership and upon all groups whose activities have an effect upon traffic safety to critically review their programs, to discard that which has been ineffective or which has led to driver and pedestrian complacency.

Resolution No. 4

WHEREAS, more than 2000 radar speed meters and radar vehicle detectors are being used throughout the nation by municipal, county, state and Federal agencies to conduct traffic studies and as an aid to the enforcement of traffic laws, and

WHEREAS, the Federal Communications Commission presently licenses these devices in accordance with Part 10 of the Commission's rules on an assigned frequency of 2455 megacycles, and

WHEREAS, the Federal Communications Commission issues a license to an applicant for a period of only one year, and

WHEREAS, the Institute of Traffic Engineers is of the opinion that these devices, due to extensive use, no longer should be considered devices in the developmental category, and

WHEREAS, in the interest of time conservation and reduction of paper work on the part of applicants as well as FCC personnel;

NOW THEREFORE BE IT RESOLVED that the Institute of Traffic Engineers does hereby request the Federal Communications Commission to review the license grant time period and consider extending the period of licensing radar speed meters and detectors to a minimum period of three years.

Resolution No. 5

WHEREAS, considerable attention has been given by the Congress to the development of the Interstate System and the construction of other expressway type facilities, and

WHEREAS, funds have been appropriated by Federal, state and local governments for the construction and development of such facilities, and

WHEREAS, such emphasis is likely to divert attention from the need to improve present street systems, and

D. O. OPSTAD,
General Sales Manager,
Reflective Products Division, Minnesota Mining & Mfg. Co., St. Paul 6, Minnesota.

An open letter to

HIGHWAY OFFICIALS

You've seen the first three in this new series of advertisements telling the American public of your problems in bringing modern safety to today's roads.

On the opposite page is the fourth message in the new series. It continues to tell of the urgent *need* for street and road modernization. It continues to tell the story of the vital *need* for funds to support your programs.

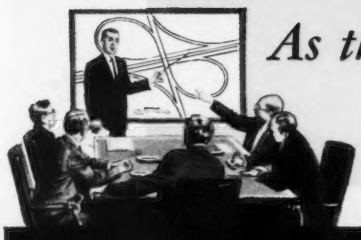
This current advertisement, appearing in the November 2nd issue of U. S. News & World Report will reach leading men and women in government, business and finance. It tells them *and* the motoring American public what can be done *now* to bring greater safety and more driving pleasure to *today's* roads.

The headline points out that although million-dollar highways of the future are being planned, safety on today's roads is progressing *now*. Through this continuing series, the public *is* being told of your problems . . . and of your solutions. With this knowledge, they can give you the sincere support needed to put your plans in action.

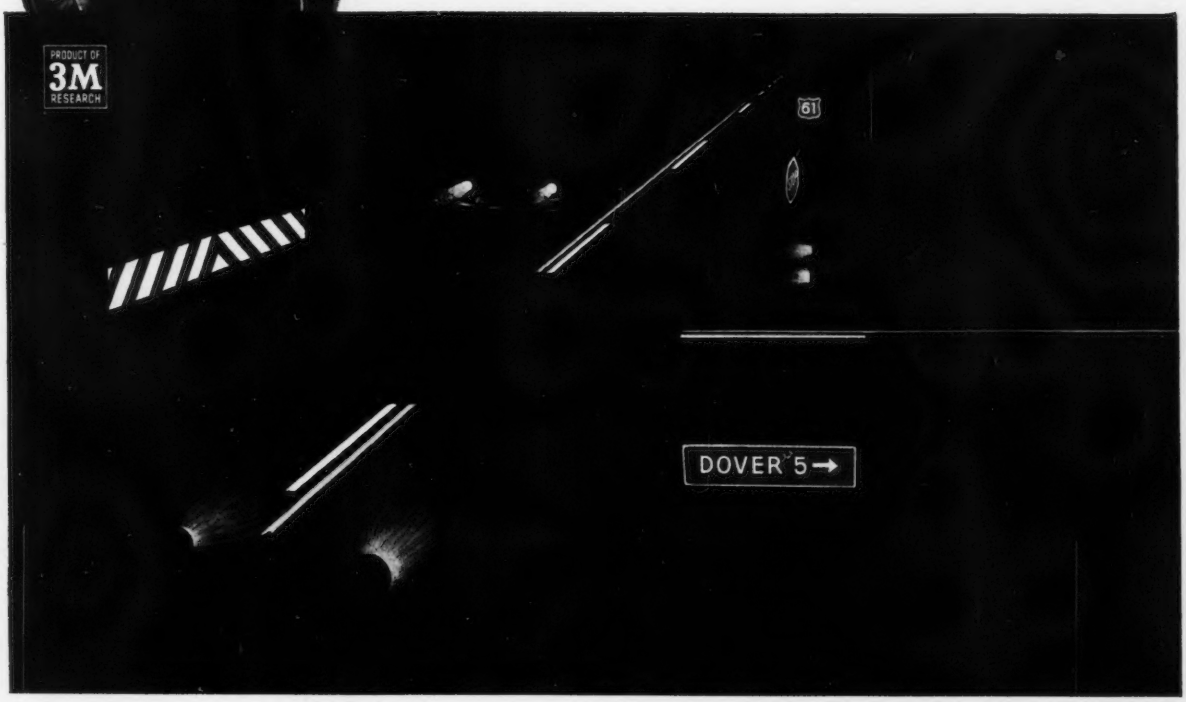
This message, appearing in U. S. News & World Report is the kind of appeal that will help get public and legislative groups behind your specific improvement programs.

D. O. Opstad

P.S. **Reprints of this advertisement are available for use by your office in letters or other mailings. Write, stating number of reprints desired to: D. O. Opstad, Reflective Products Division, Minnesota Mining & Mfg. Co., Dept. GS-11, St. Paul 6, Minnesota.**



As they plan your billion-dollar highways of tomorrow...



highway officials are making today's roads safer

Visibility *is* safety . . . especially at night. Wide new super highways will relieve nighttime dangers for many of the 20 million vehicles on the road after dark. For existing roads, your highway officials are now using improved directional signs to help you find your way safely and surely 24 hours a day.

For example, they are installing *reflective* traffic signs that leap to life when caught in your headlight beam. These vivid signs show you *exactly the same* shape, color and message by night as they do by day, providing up to ½ mile warning of danger ahead in any kind of weather.

But much more needs to be done!

Federal funds will only cover part of the big job. Funds to speed road modernization are still urgently needed by your local community and state. *You can help.* Write to your mayor, governor or county commissioner. Let them know you stand behind all efforts to make today's streets and highways safer. The plans you support today may save your life tomorrow.

When you see traffic signs of vivid, durable "Scotchlite" Reflective Sheeting (in any weather, from far down the road, they show exactly the same shape, color and message by night as by day), you know that you and your family are getting maximum nighttime driving safety for your tax dollar.

The term "Scotchlite" is a registered trademark of Minnesota Mining & Mfg. Co., St. Paul 6, Minn.
General Export: 99 Park Avenue, New York 16, N. Y. In Canada: P.O. Box 757, London, Ontario.

Stars in Stripes...

HERE ARE TWO STAR PERFORMERS especially designed to suit the marking requirements of towns and industries . . . the Wald Reflecto-Liner Model 8T and the Wald Reflecto-Liner, Jr. Both are equipped with Wald patented vertically adjusted shrouds, assuring uniformly crisp stripes . . . both spray single lines of traffic paint or reflective marking material . . . both have outboard spray guns that make it possible to mark parking lines right up to the curb or wall . . . both are easily maneuvered in close quarters . . . both can handle all the pavement marking needs of smaller communities and industries to stripe parking stalls, aisles, crosswalks and center lines . . . and both are engineered for efficient low-cost striping.

Reflecto-Liner Model 8T
Self-propelled with over-center traction for uniform drive, sprays 2 to 6 inch stripes at 3 mph.

Reflecto-Liner, Jr.
Hand-propelled, this narrow, nimble machine sprays stripes 2 to 4 inches wide at walking speed

The Wald Model 8T and Reflecto-Liner, Jr. are just two of the striping machines in the complete Wald line. For full information about Wald Truck-O-Liners, Reflecto-Liners, Carry-Liners and accessories, write for illustrated catalog W-56.

WALD INDUSTRIES, INC.

HUNTINGDON
PENNSYLVANIA

WHEREAS, the importance of local streets must especially be recognized since they will serve as feeders and distributors for the higher type highways;

NOW THEREFORE BE IT RESOLVED that the Institute of Traffic Engineers call attention to the urgent need to improve local streets and highways and point out to public officials, civic organizations, and information media the fact that a major portion of future traffic will still be required to use present streets, and

BE IT FURTHER RESOLVED that all traffic engineers take every opportunity to bring this urgent matter to the attention of official and private agencies concerned with the free and safe movement of traffic.

Resolution No. 6

WHEREAS, the 26th annual meeting in San Francisco was carefully planned and accomplished in a most pleasing and satisfactory manner, and

WHEREAS, the technical sessions were on timely subjects and the speakers were instructive and inspiring, and

WHEREAS, the entertainment program for the delegates, their wives and guests has been most pleasant;

NOW THEREFORE BE IT RESOLVED that the entire membership of the Institute of Traffic Engineers express its sincere thanks to Bob Glenn, general chairman, and the personnel of the various local arrangements committees;

NOW THEREFORE BE IT RESOLVED that the membership of the Institute of Traffic Engineers express its warmest appreciation to Mrs. J. A. Czizek, Mrs. J. F. O'Shea and Mrs. R. T. Shoaf for an interesting and entertaining ladies program; and

BE IT FURTHER RESOLVED that the membership of the Institute of Traffic Engineers extend its thanks to the many friends and supporters who have contributed so much to the success of this 26th annual meeting.

Resolution No. 7

WHEREAS, the great strides made by the Institute of Traffic Engineers during the past year are largely due to the serious and conscientious efforts of its Officers and Directors, and particularly the leadership of its president, and

WHEREAS, the sincere interest and untiring efforts of the president have been outstanding;

NOW THEREFORE BE IT RESOLVED that the membership of the Institute of Traffic Engineers express its appreciation to Charles W. Prisk at this time of his retirement from the presidency for his accomplishments during the past year, for his many years as an officer and director, for his great devotion for the welfare of the Institute, and for his contribution to the advancement of the profession of traffic engineering.

ADOPTED by the Institute of Traffic Engineers at the Annual Meeting, San Francisco, California, September 27, 1956.

Official Signs for every Need
STOP
20TH ST.
DREXEL AV
SLOW
SCHOOL
SPEED LIMIT 25
NO PARKING BETWEEN SIGNS
MEN WORKING
LOOK TO LYLE
Selecting the most effective sign for a specific traffic problem is half the solution...and Lyle, headquarters for official traffic signs (and custom-built signs, too) can help with professional guidance. A complete line of signs and accessories for cities, counties, states and contractors. Write for catalog.
LYLE SIGNS, INC.
2721 UNIVERSITY AVENUE, S. E.
MINNEAPOLIS 14, MINNESOTA

New Appointments And Transfers

TRANSFERS

ADDISON, Walter J. (Associate)
Associate Traffic Engineer
Wilbur Smith & Associates
495 Orange Street
New Haven, Connecticut

BARNETT, Norman C. (Associate)
Traffic Engineer
Traffic Engineering Department
Room 411, Municipal Building
Tulsa, Oklahoma

CAMPBELL, Robert B. (Associate)
Traffic Research Engineer
Planning Division
Ontario Department of Highways
Parliament Buildings
Toronto, Ontario, Canada

CARROW, William R. (Associate)
Assistant Traffic Engineer
Delaware State Highway Department
152 South State Street
Dover, Delaware

COYLE, Lewis R. (Associate)
Traffic Planning Engineer
Department of Traffic Engineering
418 St. Paul Place
Baltimore 2, Maryland

GIBSON, Arthur C. (Associate)
Sign Shop Supervisor
City of Detroit
1601 Modern Avenue
Detroit, Michigan

KANZ, Anthony C. (Associate)
Traffic Planning Engineer
Bureau of Traffic Engineering
Department of Streets
Philadelphia, Pennsylvania

KUEHL, Roger E. (Associate)
Assistant City Traffic Engineer
City Hall
414 East 12th Street
Kansas City, Missouri

McCANDLISS, Alfred N. (Member)
Assistant Safety Director
G-1 Division, Safety Section
APO 407, New York, New York

MUELLER, Edward A. (Associate)
Assistant Engineer of Traffic & Planning
Florida State Road Department
Holland Building
Tallahassee, Florida

OLCOTT, Edward S. (Associate)
Project Coordinator for Arterial Facilities
The Port of New York Authority
111 Eighth Avenue
New York 11, New York

SAWHILL, Roy B. (Associate)
Assistant Professor, Dept. of
Civil Engineering
University of Washington
Seattle, Washington

SCHWAR, Johannes F. (Associate)
Roads Engineer
Division of Civil Engineering
Department of Transport
P. O. Box 415
Pretoria, South Africa

WELTY, William R. (Member)
Senior Traffic Engineer
Texas Highway Department
Texas Highway Building
Austin 1, Texas

ZRALEK, Robert L. (Associate)
Traffic Engineer
Bureau of Street Traffic & Parking
Room 709, City Hall
Chicago 2, Illinois

NEW MEMBERS

BEAUREGARD, Yves H. (Junior)
Assistant Traffic Engineer
Quebec Roads Department
60 St. James Ouest, Room 400
Montreal, Canada

BILLION, Charles E. (Associate)
Principal Civil Engineer
Highway Planning
State Office Building
Albany, New York

BRADLEY, William W. (Member)
Traffic & Planning Engineer
South Carolina State
Highway Department
Columbia, South Carolina

CANGIANO, Vincent M. (Junior)
Design Engineer
Philip W. Genovese & Associates
294 Elm Street
New Haven, Connecticut

COLPITTS, Robert J. (Junior)
Assistant Traffic Engineer
Department of Public Works
Room 502, City Hall
Tacoma, Washington

CROCKETT, William R. (Junior)
Associate Traffic Engineer
South Carolina State Highway Department
Columbia, South Carolina

CROWLEY, Kenneth W. (Junior)
Assistant Highway Planning Engineer
The Port of New York Authority
111 Eighth Avenue
New York 11, New York

CURTISS, Charles D. (Honorary)
Commissioner
U. S. Bureau of Public Roads
Washington 25, D. C.

GEORGE, Earl T., Jr. (Junior)
Assistant Traffic Engineer
Room 306, City Hall
New Orleans, Louisiana

GRAHAM, Keith W. (Junior)
Traffic Control Engineer I
Bureau of Traffic Engineering &
Electrical Services
Room 804, City Hall
Milwaukee, Wisconsin

HARDING, John H. (Associate)
Senior Traffic Engineer
B. C. Department of Highways
Parliament Buildings
Victoria, B. C., Canada

HEIDENREICH, Joseph M. (Associate)
City Traffic Engineer
Traffic Engineering Department
City Hall
Lexington, Kentucky

HILLER, Sherwood H. (Associate)
Assistant Engineer of Traffic
State Road Department of Florida
Holland Building
Tallahassee, Florida

KANE, Arthur E. (Associate)
Director of Construction & Maintenance
Department of Traffic
100 Gold Street
New York 38, New York

KASK, Mart (Junior)
Junior Engineer
Washington State Highway Department
Highway Planning Division
Transportation Building
Olympia, Washington

LABIOSA, Victor M. (Associate)
Assistant Chief of Division
Highway Planning & Research Division
Bureau of Traffic
Department of Public Works
Santurce, Puerto Rico

LASH, Michael (Junior)
Highway Engineer
U. S. Bureau of Public Roads
500 Capitol Avenue
Hartford, Connecticut

LEIS, Leonard E. (Junior)
Traffic Engineering Associate
Traffic Engineering Division
2nd & Oswald Streets
Toledo 5, Ohio

McKENZIE, Dee W. (Associate)
Consulting Traffic Engineer
Partner, D. Jackson Faustman
1243 Marian Way
Sacramento, California

McLEOD, Thomas T. (Junior)
Student, University of California
Institute of Transportation &
Traffic Engineering
Berkeley, California

MELENDEZ, Juan F. Vives (Associate)
Chief, Planning & Programming Section
Highway Planning & Research Division
Bureau of Traffic
Department of Public Works
Santurce, Puerto Rico

MONTABES, Miguel (Affiliate)
Secretary General
Spanish Road Federation
Alcala 45
Madrid, Spain

NEGRONI-VIVALDI, Rafael (Junior)
Civil Engineer
Bureau of Traffic
Department of Public Works
Santurce, Puerto Rico

O'LEARY, Patrick J. (Associate)
Director, Bureau of Special Services
Department of Traffic
100 Gold Street
New York 38, New York

PERKINS, Hubert K., Jr. (Junior)
City Traffic Engineer
Bureau of Traffic Engineering
900 East Broad Street
Richmond, Virginia

PETERSON, Robert G. (Junior)
Assistant Traffic Engineer
Bureau of Traffic
274 City Hall
St. Paul 2, Minnesota

PINNELL, Charles (Junior)
Instructor of Civil Engineering
Texas Technological College
Lubbock, Texas

RENNIE, Thomas J. (Associate)
Street Planning & Design Engineer
City of New Orleans
Room 309, City Hall
New Orleans, Louisiana

RICHEY, Maurice (Junior)
Traffic Engineer
Montana State Highway Department
Helena, Montana

SCHWARZ, Robert H. (Junior)
Captain, U. S. Army Transportation Corps
OSATE, OCOFT, Department of the Army
Washington 25, D. C.

SCRUGGS, John M. (Junior)
Traffic Engineer I
City of Philadelphia
Room 1002, City Hall Annex
Philadelphia 7, Pennsylvania

SLIDER, Earl R., Jr. (Junior)
Assistant Traffic Engineer
Traffic Engineering Department
City Hall
68 Mitchell Street, S.W.
Atlanta 3, Georgia

TAMIR, Max M. (Associate)
Assistant Traffic Engineer
Department of Traffic
100 Gold Street
New York 38, New York

THOLBORN, George F. (Junior)
Assistant District Traffic Engineer
Department of Public Works
Division of Highways, District X
1976 East Charter Way
Stockton, California

VENABLE, Clinton A. (Junior)
E. I. T. Traffic Designer
Indiana State Highway Department
Bureau of Traffic
102 North Senate
Indianapolis, Indiana

WATSON, Frank L. (Junior)
Traffic Signal Engineer
Traffic & Transportation Department
702 City Hall
Houston, Texas

WHEN YOU
CHANGE YOUR ADDRESS

. . . please notify us promptly. Your copies of "TRAFFIC ENGINEERING" will then reach you without delay and without interruption.

Membership Applications

The following applications have been received since the list of applicants published in the October issue.

APPLICATIONS FOR TRANSFER

BABCOCK, Willard F.
Professor of Civil Engineering
North Carolina State College
Raleigh, North Carolina
September 21, 1956 for MEMBER grade

GOVE, A. Wallace
Traffic Engineer
City of Worcester
20 East Worcester Street
Worcester 8, Massachusetts
September 7, 1956 for MEMBER grade

LAPIN, Howard S.
Transportation Planning Analyst IV
City of Philadelphia
Urban Traffic & Transportation Board
Market St. National Bank Bldg., Room 1510
Philadelphia, Pennsylvania
September 6, 1956 for ASSOCIATE grade

WHITE, William S., Jr.
Traffic Operations Engineer
Bureau of Traffic Engineering
Department of Public Safety
900 East Broad Street
Richmond, Virginia
September 5, 1956 for ASSOCIATE grade

NEW APPLICATIONS

BACKMAN, Charles E.
Assistant Highway Engineer
California Division of Highways, District X
1976 East Charter Way
Stockton, California
September 30, 1956 for ASSOCIATE grade

COCHARO, Sam L.
Traffic Engineer
Division of Engineering
Department of Public Works
City Hall
Pueblo, Colorado
October 1, 1956 for JUNIOR grade

DEEN, Thomas B.
Traffic Analyst II
City of Nashville
City Office Building
2nd & Lindsley
Nashville, Tennessee
September 19, 1956 for JUNIOR grade

FIELDS, Kenneth G.
Assistant District Engineer of Traffic
Indiana State Highway Department
102 North Senate
Indianapolis, Indiana
September 28, 1956 for ASSOCIATE grade

GATELY, Joseph E.
Traffic Survey Engineer
Oregon State Highway Department
Room 500, State Highway Building
Salem, Oregon
September 10, 1956 for ASSOCIATE grade

IRELAND, Eugene F.
Associate Highway Engineer
Washington Department of Highways
Transportation Building
Olympia, Washington
September 12, 1956 for ASSOCIATE grade

KEMSLEY, Sidney H.
Executive Officer
Transport Control Board
Bermuda
August 25, 1956 for MEMBER grade

KESSLER, Warren L.
Assistant Operations Engineer
Illinois Division of Highways
State Office Building
Springfield, Illinois
August 30, 1956 for MEMBER grade

MONTELEONE, Raymond
District Traffic Engineer
Connecticut State Highway Department
Sunlight Building
Franklin Street
Norwich, Connecticut
September 6, 1956 for JUNIOR grade

STEBBINS, William R., Jr.
Research Assistant
The Traffic Institute
Northwestern University
1704 Judson Avenue
Evanston, Illnois
September 4, 1956 for ASSOCIATE grade

TAYLOR, Jackson H.
Principal Associate, Project Manager
Parsons, Brinckerhoff, Hall & Macdonald
51 Broadway
New York 6, New York
September 4, 1956 for MEMBER grade

VARDON, John L.
Acting Route Analysis Engineer
Ontario Department of Highways
Room 1422, Parliament Building
Toronto, Ontario, Canada
September 28, 1956 for JUNIOR grade

New Appointments

Gravelle Moves from ASF To New York City

Gordon K. Gravelle (Mem., ITE) has joined the New York City Department of Traffic as Deputy Commissioner. Gravelle, member of the Board of Direction of the Institute from District 2, was Transportation Engineer

Gordon K. Gravelle

for the Automotive Safety Foundation in Washington from 1950 to last September when he moved to New York.

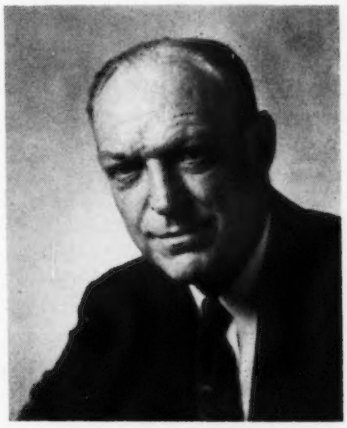
Gravelle is widely known in state highway departments throughout the country. He was resident engineer for ASF on the Albuquerque study in 1950, a joint project of the State, City, PRA, and ASF. Since then he has been involved in various studies of the Foundation, working most recently with AASHO committee on traffic engineering organization in states.

Prior to coming to ASF, Gravelle worked for Capital Transit in Washington. A graduate of the University of Michigan, he completed additional work at Wayne University and Yale, then served with the Michigan State Highway Department. During World War II he served in the Corps of Engineers and overseas with the Transportation Corps, European Theatre.

Please Mention
TRAFFIC ENGINEERING
When Writing
Our Advertisers

Kraft to Air Safety Position

Merwyn A. Kraft (Mem., ITE) for 18 years on the staff of the American Transit Association, has accepted a position with the Flight Safety Foundation, Inc., of 468 Fourth Avenue, New York, where he will coordinate a research project being carried on by



Merwyn A. Kraft

the Foundation for the Civil Aeronautics Administration in the field of physical standards for aviation personnel.

The Flight Safety Foundation is a non-profit organization devoted solely to safety in aviation.

Mr. Kraft is widely acquainted throughout the transit industry and is equally well known among various national safety organizations.

Over the years, he spearheaded the development of scientific personnel procedures for the transit industry, including selection and employment of operating personnel and "The Case Interview Plan for Administration of Discipline." He was author or co-author of numerous manuals designed to instruct personnel men in the use of these procedures.

His outstanding work in the safety field was recognized by his being selected as a member of the Commission on Accidental Trauma of the Armed Forces Epidemiological Board, and as chairman of the research committee of the Advisory Council to the President's Committee for Traffic Safety. He is currently chairman of the Committee on Ways and Means of the Institute.

Commissioner Curtiss Named Honorary Member of ITE

Commissioner Charles D. Curtiss of the Bureau of Public Roads was elected an Honorary Member of the Institute of Traffic Engineers at the San Francisco meeting in September.

Curtiss' election made him the 1000th member of the Institute and the 8th living Honorary Member. In an acceptance message which was read by Vice President Havenner at the annual banquet, Commissioner Curtiss said:

"It gives me great pleasure and satisfaction to learn that my name will be added to the distinguished roster of the Institute of Traffic Engineers as an honorary member. I only wish that events had permitted me to attend your 26th Annual Convention.

"Perhaps it is prophetic that I should become the 1,000th member for the Bureau of Public Roads and the Institute have many objectives in common. Certainly, I shall do all in my power to foster the fine working relationship that already exists.

"Now that Congress, in the Federal-Aid Highway Act of 1956, has taken a giant stride toward providing funds for a modern highway system, our opportunities are immeasurably greater. But we all know that more than dollars and sheer construction ability will be needed to provide the public with truly adequate transportation service. Correspondingly greater efforts will be required in every line of engineering endeavor, and by every State and local jurisdiction. Wider, more intensive application of traffic engineering principles will be required both to carry out the huge new program for the Interstate System, and in the operation of our vast mileage of streets and highways which lie outside this system.

"Every person who enters upon the public ways—by private motor vehicle, mass transit, truck or afoot — is affected by the quality of the traffic engineer's performance. Your opportunities and responsibilities are almost limitless.

"Congratulations and best wishes for a most successful future.

"To all of you, my deep appreciation of a signal honor."

New Publications

Ohio Turnpike Report

By T. J. Kauer. University Press, The Ohio State University, Columbus 10, Ohio, 150 pp., $6.00.

The "Ohio Turnpike Report," by Theodore J. Kauer, chief engineer for the project 1952-56, has just been published by the Engineering Experiment Station at Ohio State University.

The book, which contains 150 pages and 38 figures, maps, etc., is the story of the Ohio Turnpike from start to finish, from legislation to operation. We believe that anyone interested in highways, toll roads or turnpikes will be interested in the detailed account of the largest revenue-bond financed project ever attempted.

The book represents work done by Mr. Kauer to fulfill requirements for the professional degree of Civil Engineer at Ohio State. It is a readable and understandable book, but with a wealth of technical detail of interest to professional persons involved in any way with highway construction, including engineers, contractors, suppliers, lawyers, etc.

The chapters are: Historical, Effects of World War II, First Modern Turnpike in Ohio Proposed in 1947, Ohio Turnpike Act—1949, Personnel, Traffic Engineering Studies, Preliminary Engineering Studies, Estimate of Project Costs, Economics of Project, Surveys for Design, Safety Aspects of Design, Design Criteria, Pavement and Subbase Design, Radio Communications, Toll Collection System, Specifications, Rules and Regulations and Litigation.

Traffic Safety Index - 1955

National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill., Vol. 1, 1956, 35 pp.

This valuable bibliography lists publications printed in 1955 bearing on traffic safety and received by the library of the National Safety Council. Classified by subject matter, the list contains over 600 titles.

Night Visibility 1955

Bulletin 127, Highway Research Board, Washington, D.C., Sept. 1956, 66 pp., $1.20.

This publication contains seven papers sponsored by the Committee on Night Visibility and presented at the 34th Annual Meeting.

The first paper presents the results of tests on night sign brightness, the level of illumination to which the eye is adapted, characteristics of letters, and contrast direction.

The second paper describes the methods and results of tests on candle power of rear lights on trucks, while the third discusses the specifications and performance of a cooperatively developed sealed-beam headlamp for automobiles.

The fourth paper presents the results of road tests on night visibility through heat-absorbing glass; the fifth presents the effect of tinted optical media, including the heat-absorbing glasses.

Paper number six describes the results of a study on visual efficiency in monocular driving, particularly as regards the necessary safety precautions to be recommended for this type of driver.

The last paper discusses the causes behind the problem of reduction of visibility caused by oncoming headlights during night driving.

Characteristics of Rural Ran Off Roadway Accidents, 1955

Michigan State Police, E. Lansing, Mich., 12 pp., plano.

A total of 5,271 rural accidents during 1955 were studied, all involving a vehicle which ran off the roadway as an initial event in the accident. These are the single vehicle accidents which are commonly attributed to speed or drinking.

The study points out some differences between these accidents and other rural accidents — and while speed and alcohol are apparently important factors, the engineer will be interested in the relatively great importance of roadway defects, curvature, blacktop and gravel surfaces, and darkness.

Proceedings, 8th Annual Meeting, Western Section, Institute of Traffic Engineers

Western Section, ITE, M. H. West, Chairman, Convention Committee, c/o California Division of Highways, Sacramento, California. 208 pp., mimeo.

This volume reports on the 8th annual meeting of the Western Section of the Institute of Traffic Engineers, which was held in San Diego, California, in June, 1955.

Included are papers by J. O. Mattson, "Planning for Transportation," Norman Kennedy, "Searching for a Level of Transportation Service," and J. H. Mathewson, "Assignment of Traffic Engineering Responsibility."

Other programs reported in detail include a panel discussion of geometric design, participated in by Joseph Barnett and J. C. Young. Other panels reported upon discussed: (1) traffic committees, (2) new developments in the western states in the field of traffic engineering, (3) traffic engineering techniques and (4) metropolitan freeways.

The proceedings include a full list of convention delegates and a copy of the complete program. The discussions are reported fully, with only minor editing of the actual presentation.

Six-year record shows Alcoa® Aluminum doubles sign life in Charlotte, N. C.

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Toledo 10, Ohio

Gopher Stamp & Die Co.
78 Chicago Avenue, E.
St. Paul, Minnesota

The Grote Manufacturing Co., Inc.
500 Lafayette Avenue
Bellevue, Kentucky

The Hunt Company
18308 James Couzens Hwy.
Detroit 35, Michigan

Lyle Signs, Inc.
2720 University Ave., S. E.
Minneapolis 14, Minnesota

Minnesota Mining & Manufacturing Co.
900 Fauquier Avenue
St. Paul, Minnesota

Mulholland-Harper Co.
5820 Tacony St.
Philadelphia, Pa.

National Safety Engineers, Inc.
3910 First Ave., South
Birmingham, Alabama

Standard Sign & Signal Co.
470 Main Street
Clinton, Massachusetts

Traffic & Street Sign Company
80 Foundry Street
Newark, New Jersey

Zumar Industries
1608 Essex Street
Los Angeles 28, California

Yearbook Changes

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Coming Events

Nov. 27-30—AMERICAN ASSN. OF STATE HIGHWAY OFFICIALS
42nd Annual Meeting Traymore Hotel, Atlantic City, N. J. Contact: AASHO, 917 National Press Bldg., Washington 4, D.C.

— 1957 —

January 7-11 — HIGHWAY RESEARCH BOARD —
Annual Meeting, Sheraton-Park Hotel, Washington, D.C. Contact: HRB, 2101 Constitution Ave., Washington 25, D.C.

January 28-February 2 — AMERICAN ROAD BUILDERS ASSN.—
Annual Convention and Road Show, Chicago Amphitheatre, Chicago, Ill. Contact: ARBA, World Center Bldg., Washington 6, D.C.

February 18-22 — AMERICAN SOCIETY OF CIVIL ENGINEERS —
Convention, Hotel Heidelberg, Jackson, Miss. Contact: ASCE, 33 W. 39th St., New York 18, N. Y.

March 3-5—SOUTHERN SAFETY CONFERENCE & EXPOSITION—
John Marshall Hotel, Richmond, Va. Contact: W. L. Groth, Exec. Dir., Box 8927, Richmond 25, Va.

March 17-21—AMERICAN SOCIETY OF PLANNING OFFICIALS—
Annual Planning Conference, Sheraton-Palace Hotel, San Francisco, Calif. Contact: ASPO, 1313 E. 60th St., Chicago 37, Illinois.

September 23-27—INSTITUTE OF TRAFFIC ENGINEERS —
Annual Meeting, Statler Hotel, Detroit, Mich. Contact: ITE, 2029 K St. NW, Washington 6, D. C.

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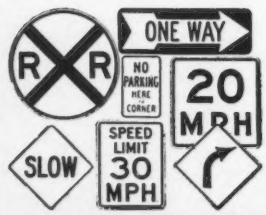

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Traffic News

Tallamy Named Federal Highway Administrator

The White House has announced that the name of Bertram D. Tallamy will be submitted to Congress by the President in January for the new position of Federal Highway Administrator. In the meantime, the President is appointing John A. Volpe to serve as Administrator during the interim.

Tallamy is now chairman of the New York State Thruway Authority. Volpe resigned this month as Commissioner of Public Works in Massachusetts to return to private business.

In commenting on the appointments, Secretary of Commerce Sinclair Weeks, who directs the national highway program provided by the Federal Aid Highway Act of 1956, said:

"President Eisenhower has selected Bertram D. Tallamy, Chairman of the New York State Thruway Authority and one of the world's greatest builders of roads, to fill the new position of Federal Highway Administrator. He will have direct responsibility for the administration of the Bureau of Public Roads and the new National Highway Program. This assures the nation that history's biggest public works project, involving billions of dollars, will be constructed with outstanding skill, speed, vision and integrity.

"Because of the magnitude of the new National Highway Program, and the tremendous contribution it will make to safe, swift and convenient motor transportation, economic growth and national defense, a nationwide search was made for the expert best qualified to handle this all-time record road program. Advice was sought from authorities in highways, transportation, public works, and related fields.

"Mr. Tallamy is far-famed for engineering know-how and business executive competence. He has also the priceless experience of many years as the Superintendent of Public Works of New York State, which has both densely populated industrial areas and farm country traffic problems.

"His unique combination of talents means full understanding of government-industry highway practices and proven experience in cooperation with state highway departments.

"His previous commitments make it impossible for him to accept the appointment by the President until early next year. So the President, in order that the quickening of pace in the vast highway program can be maintained, will appoint John A. Volpe, another distinguished highway executive to serve as Administrator in the interim.

"Mr. Volpe resigned this month as Massachusetts' Commissioner of Public Works to return to private business, after completing one of the most modern state highway programs. At the request of the President he will defer his return to private business to accept this national responsibility within a fortnight. He will serve until Mr. Tallamy is free to take over.

"Mr. Volpe's life is an inspiring success story in the finest tradition of American initiative. Starting as a young contractor of immigrant parentage in the depths of the 1934 depression on a $300 capital, he built up his business until now it is one of the country's leading general construction firms. In 1953, he took leave from private business to expand the Massachusetts highway system.

"Progress of the new Interstate Highway System and supplementary Federal-aid to state highways already is ahead of schedules. It is gaining momentum as more and more states start their programs. Much of this teamwork stems from efforts of Commissioner of Public Roads Charles D. Curtiss, an outstanding career executive who has served the Bureau of Public Roads with distinction since 1919, and the skilled personnel of the Bureau. Mr. Curtiss will continue to serve as Commissioner under the new Administrator."

Solomon Named Winner of Past Presidents' Award

David Solomon (Jun. Mem., ITE) has been named winner of the 1956 competition for the Past Presidents' Award for Merit in Traffic Engineering. Solomon, who is Highway Transport Research Engineer for the U.S. Bureau of Public Roads, submitted a paper entitled "The Effect of Letter Width and Spacing on Night Legibility of Highway Signs." This original research was reported to the Highway Research Board at its meeting in January, 1956.

The Award was announced at the Annual Banquet in San Francisco by Harry Porter, Jr., chairman of the Judges Committee. Other members were B. W. Marsh and Wilbur S. Smith.

The Past Presidents' Award is intended to encourage original research among our Junior and Associate Members and provides a means to recognize outstanding accomplishments. It has been an annual award since 1951.

Previous winners were Carlton C. Robinson in 1951, Edward M. Hall in 1952, John E. Baerwald in 1953, and Alan M. Voorhees in 1955. No award was presented in 1954.

Solomon is a native of New Jersey, but received his undergraduate training at the University of Colorado, where he received his B. S. in 1949. He has been on the staff of the Bureau of Public Roads ever since, except for nine months at Yale, where he received a certificate from the Bureau of Highway Traffic in June, 1954. His activities with the Bureau have been concentrated in the field of research into traffic operations, with particular attention to pavement markings and signs as they affect driver behavior.

Night Speed Limit Retained In Uniform Code

A 5 mile per hour differential between day and night speed limits has been voted by the National Committee on Uniform Traffic Laws and Ordinances.

When the 60 mile per hour absolute limit was voted by the Committee last summer, the question of a lower night limit was discussed but a final decision could not be reached. This was referred to a letter ballot, which has resulted in a vote for the 5-mile per hour differential.

The Uniform Vehicle Code will therefore be published with the daytime rural speed limit shown as an absolute limit of 60 miles per hour and a night absolute of 55 miles per hour.

Section News

NEW YORK METROPOLITAN SECTION

The first meeting of the New York Metropolitan Section of the 1956-57 season was held at the National Arts Club on September 6, 1956.

President Quimby reported that a letter of intent had been drafted and would be submitted to the Board of Direction of the National Society at the Annual Meeting reaffirming the intention of the section to submit a formal invitation next year to hold the 1959 Annual Meeting in New York City.

Mr. Ricker explained the new idea that the Technical Council was considering turning over to various local sections specific technical committee assignments for drafting into proposed policies similar to the A.A.S.H.O. design policies.

Mr. Klar stated that he had received a letter from the New England Section asking for support of the New York Metropolitan Section for a candidate from the New England Section for the post of Director from District 1 in the event that *Mr. Wetzel*, the present Director, is elected Secretary-Treasurer. Motion was made and carried that a letter be sent to the New England section with a copy to Executive Secretary Baldwin, advising that the New York Metropolitan Section would support any candidate nominated by the New England Section.

Mr. Murphy discussed the use of stop signs for speed control purposes in some communities and stated that in the body of literature on the subject there is no definite statement that stop signs should be placed against the minor flow and not against the major traffic flow. Motion was carried that the section submit to the technical council at the San Francisco meeting that the practice of placing stop signs against the major traffic flow is inconsistent with sound traffic engineering principles and that the position of the profession on this question should be reviewed.

Vice President Leonard then introduced the speaker of the evening, Mr. C. E. Swain, Division Engineer of the Bureau of Public Roads, who spoke on the subject, "The Implication of the Highway Bill to the New York Metropolitan Area." Mr. Swain outlined the salient features of the highway bill describing it as an Act which recognizes the need and allots funds in order to accelerate all types of highway construction. The backbone of the highway network is the Federal Interstate System. The Act provides for payment of 90% of the cost of construction of projects on the interstate system by the Federal Government.

The integrity of the State is maintained throughout this program in that all projects are initiated by the States and all contracts are between the States and the highway contractors. The design criteria of A.A.S.H.O. have been made a part of the law through this Act.

Mr. Swain stated that one criteria is the control of access. The problem of access is one concept of old times which must be changed. The demands of through traffic on a highway system are greater than those of local service traffic. Mr. Swain defined a control access highway as one so designed that through traffic is permitted uninterrupted flow and local traffic is permitted access to service roads which join the through lanes at specifically controlled points.

Mr. Swain then traced the evolution of federal aid for highway construction starting with the Act of 1916 and leading up to the provisions of the 1956 Act. Under the provisions of the 1956 Act, New York State will receive seventy-one million dollars of each one billion dollars appropriated for the Interstate System. The 1956 Federal Highway Act which provides for the definite completion of the Interstate System within a specific time limit will provide for the completion of all arterial highways in this area and will advance a considerable portion of other highway construction. However, the completion of the Interstate System through urban areas will still leave lots of work for local areas on local highway systems.

MICHIGAN SECTION

Meeting of Thursday, September 13th, 1956
Warren Valley Country Club

After an afternoon of golf, horseshoes, and canasta in the card room, and a dinner of golden brown fried chicken, the meeting was called to order by *President Al Malo*. *Harold Bauerle* was extended congratulations by the group for being appointed the new acting director of the Planning and Traffic Division of the State Highway Department.

Our hosts for the evening were thanked for their contributions toward the success of our meeting in furnishing prizes for the raffle, golf and horseshoes. They were also thanked for the ample supply of ice water which was present before, during, and after

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the meeting. These generous hosts consisted of Mr. Oliver Carrier, Mr. Paul Vanderhill, Joseph Gable, Bill Leininger, Jack Fisher, Dan Daley and Jack Collins.

President Malo announced that committees are being formed for the National Convention which will be held in Detroit in 1957. *Sam Levine* made a motion that $50.00, more or less, be loaned for publicity material to be utilized by Michigan Section representatives at the San Francisco convention to promote the national meeting to be held in Detroit, this money to be paid back to the treasury from convention funds which will be secured later. This motion was seconded by *Harold C. Bauerle* and passed.

John Dobelik made a motion that $50.00 be appropriated to help defray expenses for maintaining a Michigan Room at the San Francisco convention. This motion was seconded by *Don Cruise* and passed.

Carl McMonagle then made an announcement that the Michigan State University Traffic Safety Center would hold a short course in traffic engineering from 8:00 to 5:00 P.M. on October 17th through 20th in East Lansing. The next ITE meeting is to be held on Thursday, October 18th, in Lansing in conjunction with the Michigan State University Traffic Safety Center course. *Al Hayes* was appointed as program chairman for that program and for the balance of the year.

Sam Levine pointed out that, in the past, the Past President has been subsidized to the extent of $50.00 to attend the national convention. *Mr. Levine* made a motion that $50.00 be appropriated to send *Mr. Ed Gervais* to the 1956 convention in San Francisco. The motion was seconded by *Harold G. Bauerle* and passed.

At this point the meeting was turned over to *Mr. Herbert Broughton* who showed two excellent movies — one, of the development of aluminum alloys and the other on fishing.

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Strictly Business

New Bead Dispensers Announced

The bead dispensers manufactured by Flex-O-Lite are now available in 5″ and 6″ widths. These new models are in addition to the 4″ dispenser announced several months ago.

These dispensers are suitable for attachment to any traffic line paint machine. They are of cast aluminum construction and will dispense beads in any quantity at any given speed. Completely automatic in operation, they may be manually operated if desired.

For further information and fully descriptive literature, address the Flex-O-Lite Manufacturing Corp., 8301 Flex-O-Lite Drive, P. O. Box 3066 (Affton Branch) St. Louis 23, Mo.

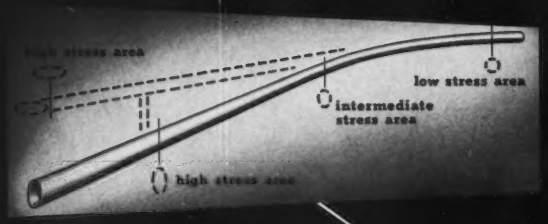
New Catalog Available On Overhead Sign Supports

A new catalog now available explains how and why overhead sign supports aid traffic flow and safety on highways, freeways, turnpikes and expressway interchanges.

These steel supports, available as double pole units for span type sign mounting or single pole units for cantilever or center mounting, are claimed to overcome the common problem of sign visibility and are designed to withstand heavy winds and ice loading.

Patterned after lighting poles, these supports are of continuous taper construction and are said to meet a broad range of highway marking requirements.

To get a copy of this catalog, write the Union Metal Manufacturing Company, Canton 5, Ohio.



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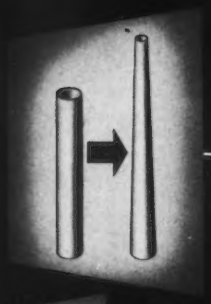

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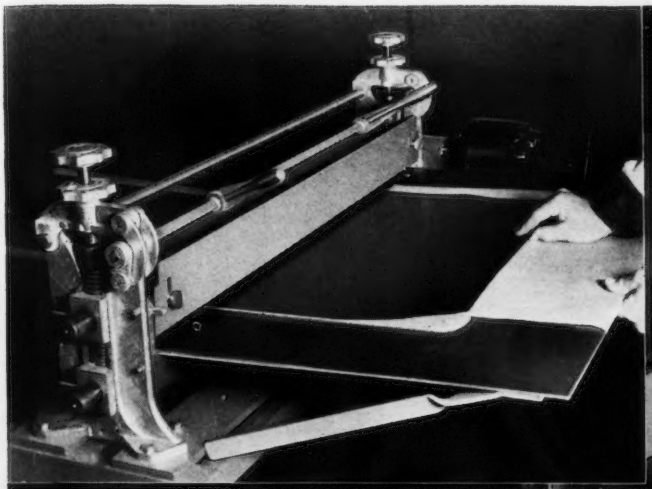

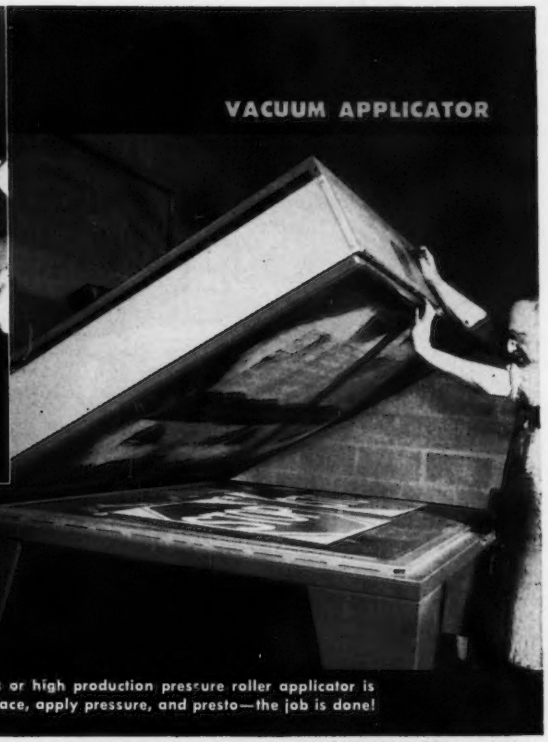

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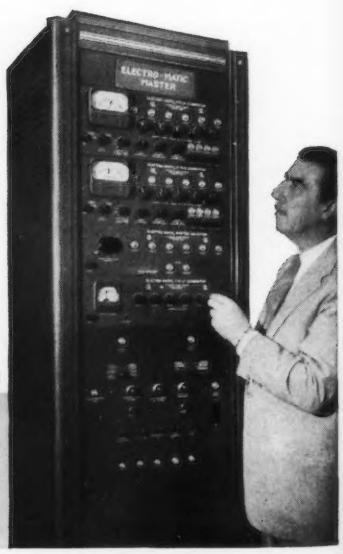

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